CITY OF CAMBRIDGE
COMMUNITY DEVELOPMENT DEPARTMENT

IRAM FAROOQ
Assistant City Manager for
Community Development

To: City Council Ordinance Committee

From: Iram Farooq

Date: December 1, 2015

Re: **PUD-KS Zoning Petition – December 1 Hearing**

We are attaching the following materials for discussion at the upcoming Ordinance Committee hearing, in response to Policy Orders passed at the November 23 meeting of the City Council. We regret that this material could not be assembled further in advance due to the intervening holiday.

- Summary of update to the K2C2 study transportation impact analysis
- Summary of financial feasibility analysis provided by HR&A Advisors, via the Cambridge Redevelopment Authority
- Planning Board Recommendation voted on November 17, 2015, including recommended zoning text changes

These three subjects will be reviewed by staff at the hearing.

In addition, for reference, we are attaching materials previously submitted to the Council including:

- Draft Urban Design Framework for the PUD-KS District and K2 Design Guidelines
- CDD report from November 9, 2015 explaining suggested changes to the initial PUD-KS Zoning Petition.

The interactive site massing model will also be brought to the hearing.

We look forward to continued discussion of this zoning petition.

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INTEROFFICE MEMORANDUM

TO: IRAM FAROOQ
FROM: SUSANNE RASMUSSEN
SUBJECT: UPDATED K2C2 TRANSPORTATION ANALYSIS
DATE: NOVEMBER 30, 2015

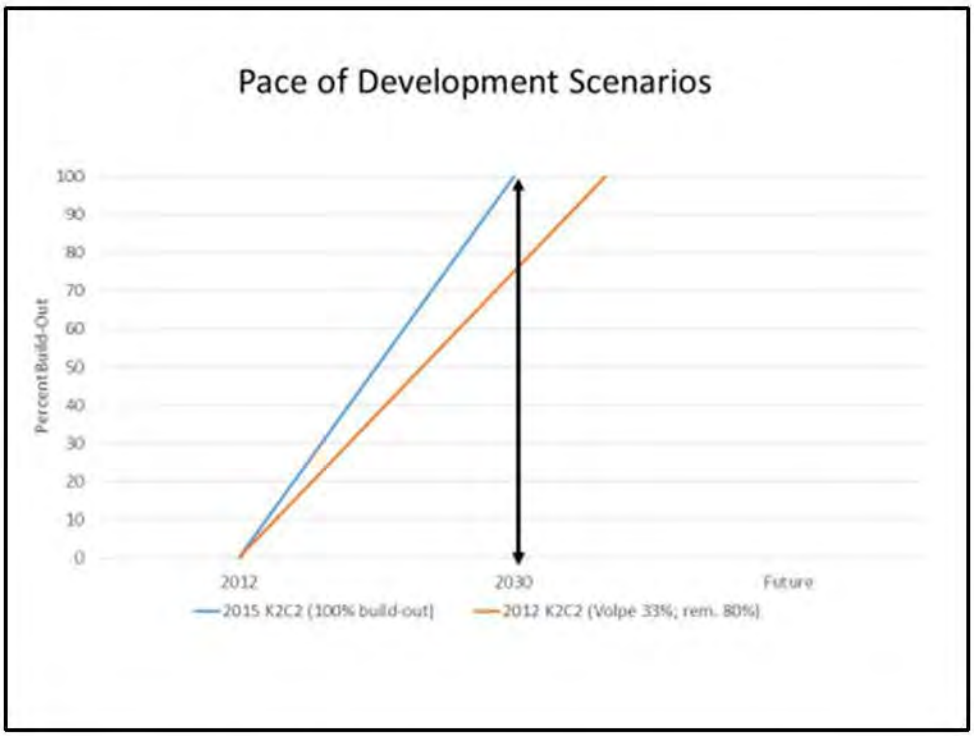
The analysis performed as part of the K2C2 Planning Study in 2012 to estimate transportation impacts from the proposed zoning for the Kendall Square and Central Square area has been updated to consider the possibility that the area might develop at a faster pace than previously assumed. While the total amount of development is virtually the same as that envisioned in 2012, the updated analysis assumes full buildout on the MIT, Volpe and CRA sites by 2030.

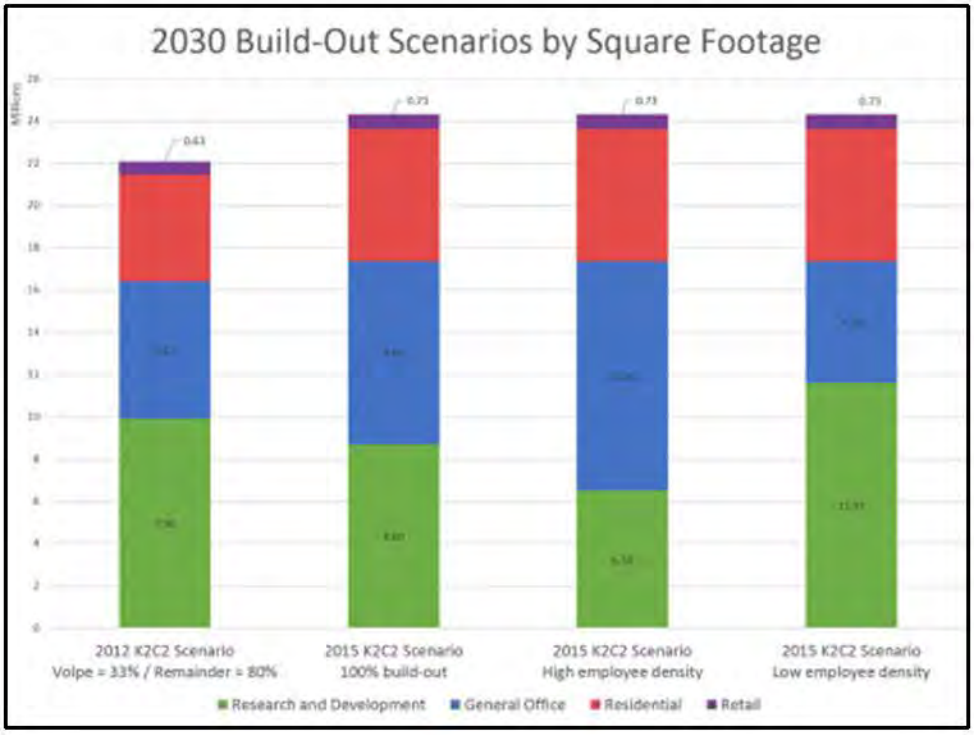
The 2012 analysis estimated how many vehicle, transit, bike and pedestrian daily trips would be expected in 2030 if zoning remained unchanged compared to the build-out scenario that was eventually adopted as part of the K2C2 plan. In addition to daily transportation impacts, an analysis called "critical sums" was also carried out to compare how the two build-out scenarios would impact traffic at a set of specific intersections.

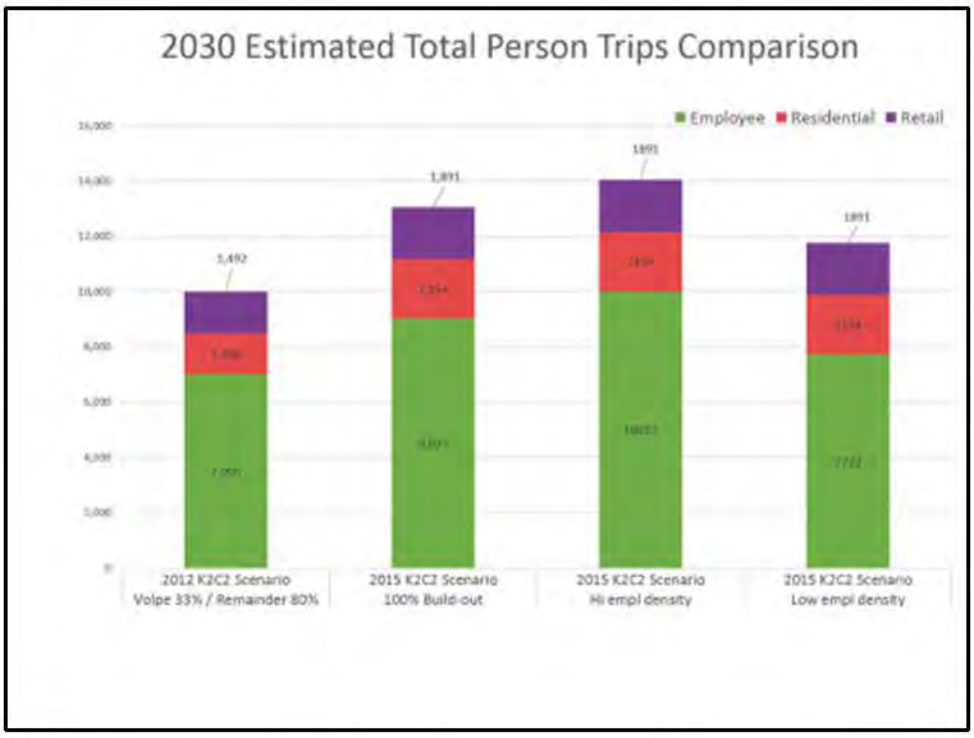
The 2030 assumptions in the 2015 update differ from the 2012 analysis in the following manner:

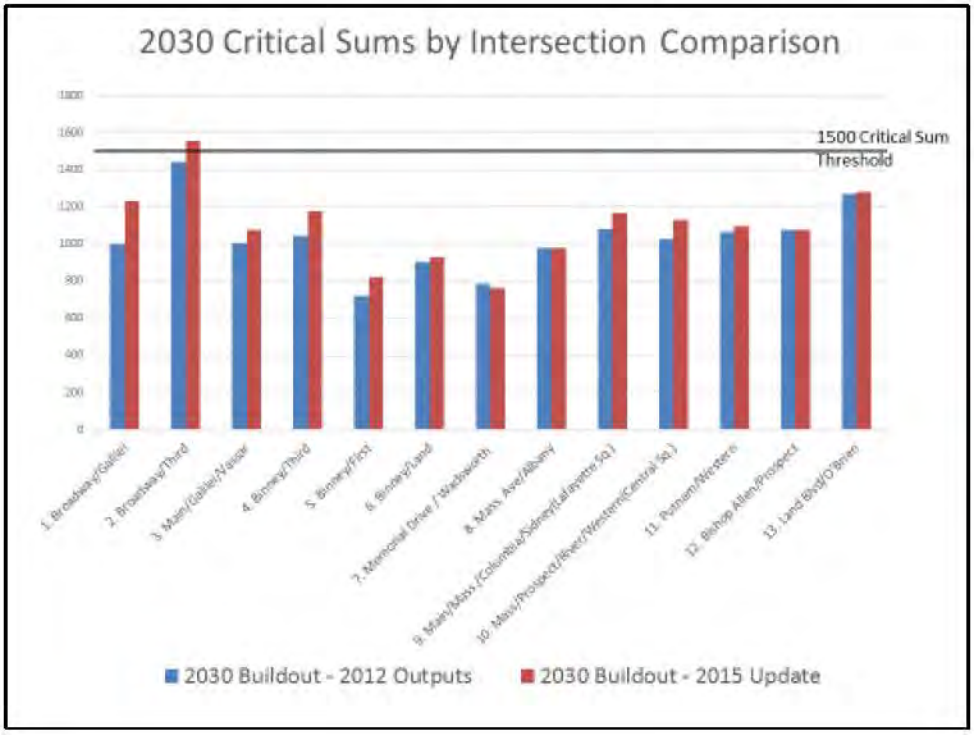
- Pace of development:
  - The 2015 analysis assumes 100% buildout throughout Kendall Square, whereas the 2012 buildout assumed that the Volpe site would only be 33% built out and the remainder of the area would be 80% built out. This leads to additional trips of all types sooner, but not to an increase in trips overall.
  - The increase in person trip generation was calculated to be between 18%-31% compared with the 2012 analysis, depending on the balance of commercial square footage between R&D and office uses.
- Impact on intersections from increase in vehicle traffic:
  - The 2012 Critical Sums analysis showed that all intersections remained below a 'critical' threshold, whereas the 2015 shows that the Critical Sum threshold is exceeded at the Broadway/Third Street intersection. Exceeding the threshold means increased wait times at an intersection, equated to having to wait more than two signal cycles before being able to proceed.

This analysis is conservative in that it assumes full buildout of the Kendall Square area in only 15 years. Actual buildout pace may alter this assumption, leading to smaller trip generation numbers than analyzed. In addition, planning tools and regulations are available at the project approval stage to address trip generation rates and/or impacts of increased trip generation including lowering of parking ratios, linking of development pace to milestones or performance standards, and direct mitigation of impacts or setting aside of funds for transportation demand management or infrastructure investment.


Pace of Development Scenarios
Percent Build-Out
100
90
80
70
60
50
40
30
20
10
0
2012
2030
Future
2015 K2C2 (100% build-out)
2012 K2C2 (Volpe 33%; rem. 80%)


2030 Build-Out Scenarios by Square Footage
Millions
0.43
0.73
0.73
0.73
2012 K2C2 Scenario
Volpe = 33% / Remainder = 80%
2015 K2C2 Scenario
100% build-out
2015 K2C2 Scenario
High employee density
2015 K2C2 Scenario
Low employee density
Research and Development
General Office
Residential
Retail


2030 Estimated Total Person Trips Comparison
Employee
Residential
Retail
1,891
1,891
1891
5,492
2012 K2C2 Scenario
Volpe 33% / Remainder 80%
2015 K2C2 Scenario
100% Build-out
2015 K2C2 Scenario
Hi empl density
2015 K2C2 Scenario
Low empl density


2030 Critical Sums by Intersection Comparison
1500 Critical Sum Threshold
1. Broadway/Galileo
2. Broadway/Third
3. Main/Gabler/Vassar
4. Binney/Third
5. Binney/First
6. Binney/Land
7. Memorial Drive / Wadsworth
8. Mass Ave/Albany
9. Main/Mass (Columbia/Sidney/Lafayette Sq.)
10. Mass/Prospect/River/Western(Central Sq.)
11. Putnam/Western
12. Bishop Allen/Prospect
13. Land Blvd/O'Brien
2030 Buildout - 2012 Outputs
2030 Buildout - 2015 Update

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MEMORANDUM

To:	Cambridge Redevelopment Authority
From:	HR&A Advisors, Inc.
Date:	December 1, 2015
Re:	Economic Analysis of Redevelopment of the Volpe Center

The Cambridge Redevelopment Authority (CRA) engaged HR&A Advisors, Inc. (HR&A) to undertake an evaluation of the economics of redeveloping the John A. Volpe Transportation Systems Center, located at 55 Broadway, based on the proposed zoning regulations. This memorandum summarizes our findings and methodology for determining the amount available to fund the following site and ancillary costs:

- Federal facility replacement (building, parking and fit-out),
- Site remediation,
- Public streets and parks, and
- Off-site infrastructure.

HR&A quantified the supportable land value (i.e. the value a private developer would pay for arms-length market transactions) for office, innovation space (office space set aside for technology startups), lab, retail, and mixed-income residential development in Kendall Square, inclusive of associated underground parking, by constructing a multi-year development feasibility model calibrated to reflect current market conditions. As such, projected construction costs are based on current projects being built in the Cambridge area and do not reflect any future design requirements, unusual ground or soil conditions, or other unique costs associated with redeveloping the John A. Volpe Transportation Systems Center.

Background and Methodology

The development feasibility model assesses the current economics of mixed-income residential rental as well as office and lab construction with ground-floor retail. In order to reflect the impact of the affordability requirements contained within the proposed zoning regulations for the Volpe site, we calibrated our residential rental cash flow to reserve 20% of total units for income-restricted affordable housing, of which 15% would be reserved for low and moderate income households and the remaining 5% would be reserved for middle income families.

Based on the "PUD-KS (Volpe Site) Rezoning Proposal" submitted to the City Council on May 27, 2015, we assumed the following development program:

- Residential: 1,116,000 gsf
- Office: 816,000 gsf
- Lab: 816,000 gsf
- Retail: 140,000 gsf

- Innovation space: 84,000 gsf
- Total: ~3 million gsf (2,972,000 gsf)

Our methodology included the following considerations:

- **Construction costs:** The financial model assumes the following hard and soft costs[1]:
  - **Residential:** $407 gsf
  - **Office:** $358 gsf
  - **Lab:** $413 gsf
  - **Retail:** $330 gsf
  - **Innovation space**: $358 gsf
  - **Underground parking:** $100,000/space

- **Supportable land value by use:** The model determines supportable land value for each use by solving for a conservative market rate of return that would be required by a standard developer in order to assume the risks associated with real estate development.[2] We calibrated our baseline development feasibility models assuming underground parking.

- **Income restricted units:** We adjusted our model to set aside 15% low-income units and 5% middle income units assuming tax-exempt bond financing, low-income housing tax credits and other subsidies would not be available, in line with current practice.

- **Rent and operating costs:** HR&A interviewed residential and commercial developers active in the Cambridge area to understand current market dynamics. Income and operating expense variables are based on data provided by the developers.

- **Development structure and phasing:** HR&A has assumed that a single horizontal developer will begin construction of site infrastructure and a replacement Volpe Center in Year 1. We have also assumed that the horizontal developer will sell developable parcels to vertical developers over three phases, the first of which will begin in Year 2.

- **Horizontal financing assumptions:** Our model assumes the horizontal developer will receive a construction loan with a 6% fixed interest rate, sized using a 60% loan-to-cost ratio, which is consistent with conservative underwriting of projects in the Cambridge area.

- **Development and linkage fees:** Based on proposed zoning documents and guidance from City and CRA staff, HR&A has assumed that the following fees will be incurred as each phase is developed:
  - Incentive Zoning Payments (Affordable Housing), and
  - Kendall Square Funds ($10 per gsf), including:
    - Open Space Payments,
    - Transit Improvement Payments, and
    - Workforce Readiness Payments.

[1] Soft costs are net of financing costs. As noted above, construction costs do not reflect any unique costs associated with redeveloping the site. Additional Kendall Square Fund fees ($10 per gsf) are accounted for by phase of vertical development, as described further below.

[2] HR&A calibrated its model using a leveraged internal rate of return of 15%, which corresponds to a 5-7% unleveraged cash-on-cash return assuming that 60% of project costs can be financed with a conventional loan paying interest of 6% per year, a conservative interest rate reflective of long-term market trends.

Findings

The following table details supportable land value per square foot for potential uses, net of associated underground parking costs, and then deducts fees and carrying costs. As the affordable housing share required by current zoning is higher than under regulations impacting other sites in Kendall Square, projected residential land values are moderately lower than values reflected in recent transactions.

Only a portion of revenues from site disposition are available to support Volpe replacement and other site costs due to the following considerations:

- **Development and linkage fees:** Our model assumes that $41.3 million in development fees will need to be paid to the City, some of which will inflate over time. These costs are assumed to be incurred over time as development proceeds.

- **Phasing and cost of capital:** The incurring of Volpe replacement and other site costs prior to the realization of revenues from phased disposition of development-ready portions of the site to vertical developers reduces available revenues, as costs incurred must be funded with a mixture of equity and debt until loans and equity can be repaid with land sale proceeds.

Estimated Land Value	Per GSF	Total[3]
Residential[4]	$58	$65,000,000
Office	$155	$126,000,000
Lab	$199	$162,000,000
Retail	$68	$10,000,000
Innovation	$129	$11,000,000
Subtotal-Residual Land Value[5]	**$126**	**$374,000,000**
Financing and Other Costs[6]	-$30	-$91,000,000
Subtotal-Financing and Other Costs	**-$30**	**-$91,000,000**
Supportable Site and Volpe Replacement Costs	**$95**	**$283,000,000**

[3] Rounded to the nearest million.
[4] The residual land value of the market-rate and affordable components is $120 and -$192, respectively.
[5] Based on proposed program SF.
[6] Includes incentive/linkage fees, debt and equity costs.

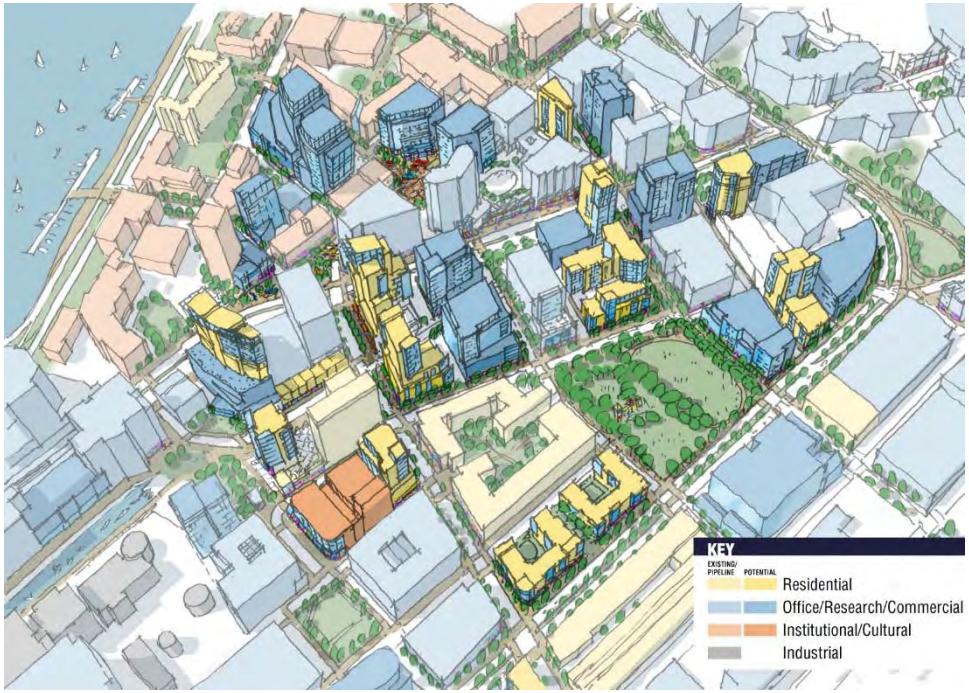
PUD-KS (Volpe Site) Rezoning November 12, 2015

Community Development Department

CAMBRIDGE
CDD@344
COMMUNITY DEVELOPMENT DEPARTMENT
344 Broadway

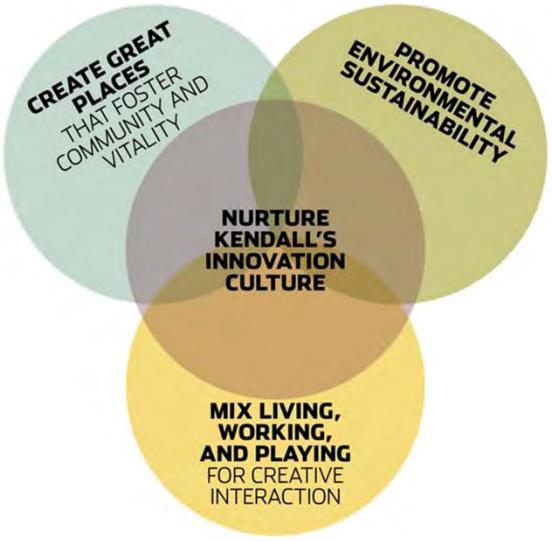
Vision for Kendall Square

"A dynamic **public realm** connecting diverse choices for **living**, **working**, **learning**, and **playing** to inspire continued success of Cambridge's **sustainable**, **globally-significant** innovation community."



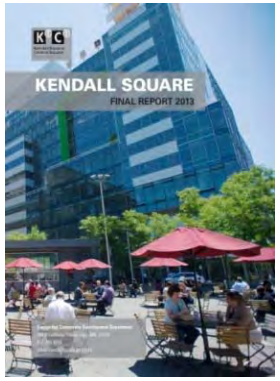
K2 Planning Vision (Goody Clancy)

ECPT Planning Vision (CBT Architects + Planners)



Benefits of PUD-KS Zoning Proposal (as Modified)

Housing	• 1,000 units minimum (approx.) • 150 affordable, 50 middle-income (approx.) • $20+ million in total incentive zoning payments
Active Ground Floors	• Continuous active use on Third Street, Broadway • Up to 140,000 SF ground-floor retail including grocery/market, small operators, family uses
Public Open Space	• At least 3.5+ acres Public Open Space • Connections to adjacent streets and spaces • At least one major civic plaza/park, other public functions
Innovation Space	• 84,000 SF (approx.) at full commercial buildout
Sustainability	• LEED Gold + energy, stormwater requirements • Additional requirements from Net Zero Plan
Community Funds	• $16+ million total for open space programming, transit improvements, workforce readiness
Urban Design	• General K2 Design Guidelines • Site-Specific PUD-KS Urban Design Framework



K2 Study Process 2011 – 2012

ECPT/CBT Plan

Connect Kendall Sq Competition

2011

K2 Study

- 20-person Advisory Committee --residents, businesses, property owners/developers, MIT, Kendall Square Association, CRA
- Multidisciplinary consultants -- Goody Clancy
- 18 committee meetings, 5 public meetings/working sessions/site tours
- City Council roundtable

2012

2013

2014

PUD-KS Proposal developed with discussions at Planning Board

2015

PUD-KS Petition Filed by Planning Board Ordinance Committee/Planning Board Public Hearings

Volpe Site Community Outreach (summer/fall)

PUD-KS Refiled – August 2015
Petition Hearings (ongoing)

2015 Community outreach

Seven drop-in conversations

1. July 30th, 5-7pm at Clement Morgan Park
2. Aug 5th, 5-7pm at Rogers Street Park
3. Aug 12th, 11am-2pm at Lafayette Square
4. Aug 15th, 2-5 pm at Greene Rose Park
5. Aug 20th, 11am-2pm at Kendall Square Farmers' Market
6. Sept 12th, 11am-4pm at The Pride Day
7. Sept 18th, 9am-4pm at The Parking Day

Sit-down forum

Oct 17th, 10am – 12pm Kennedy-Longfellow School

Other meetings

Area 4, ECPT

Council comments - Joint Hearing June 29, 2015

Housing
- Proportion of housing
- Affordable housing (low-mod, mid)
- Housing for families

Ground floor uses and activities
- Family-friendly restaurants
- Low-price supermarket
- Ground floor retail needs more specificity
- Affordable retail & locally-owned
- Retail to attract people
- Workforce development needs
- Incubator space
- Daycare

Other
- Cost and size of Volpe building & site
- FAR of 4.5 is dense
- Transportation – traffic impacts, red line
- Development feasibility
- Have community conversation

Open space & public realm
- Needs to be very special
- Building facades matter
- Need family-friendly open spaces
- Maximize sunlight & livability
- Contiguous - one primary, a secondary
- Visibility from different vantage points
- Programming
- No gates, needs to face streets
- Welcoming to the neighborhoods
- Engaging & educational indoor & outdoor
- Civic, not corporate space – medieval plaza
- Accessibility of federally-owned open space

Built form
- Composition of buildings respect each other, especially at the lower level
- Floor plate sizes important
- Don't wall off site
- 2 setbacks instead of just one
- Design guidelines need more detail

Planning Board comments– June 29 & July 14, 2015

Land use

- Supporting high-tech & innovation is most important goal for site
- Proportion of housing versus commercial/office space
- Affordable housing (low-mod, middle)
- Housing for families (3 beds)

Ground floor uses and activities

- Retail - where it is going to be located, and what sort of retail it is going to be
- Design guidelines can include retail

Other

- Need financial analysis
- FAR of 4.5 is a lot of sqf to assemble across the site
- Transit impacts

Open space and public realm

- Amount of open space
- Connections are the key for open space
- Connect Kendall shows how to make space function without 5-acre park – it's not the right location for such a large park
- Extend the canal and create more connections through the site

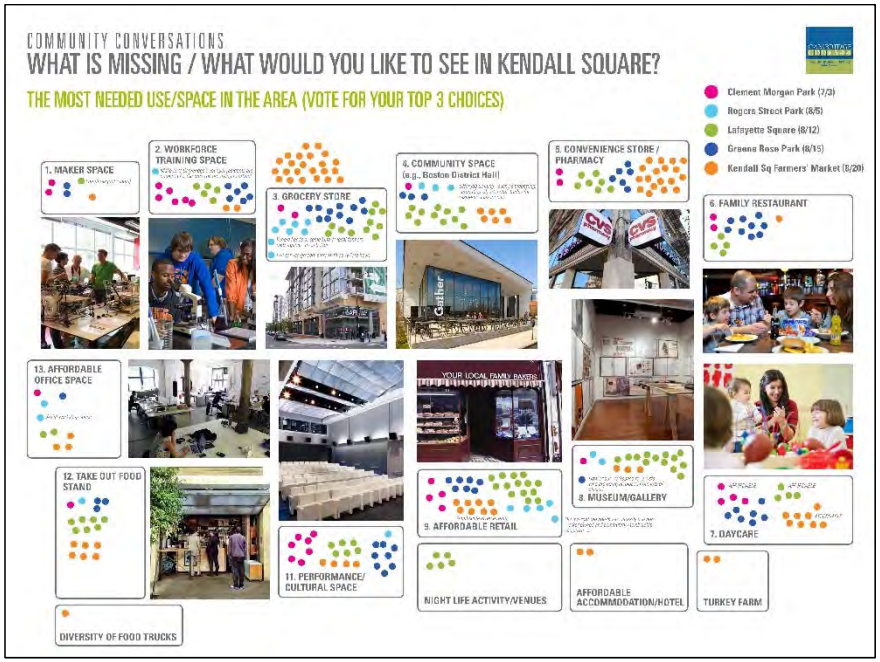
Built form & urban design

- Where taller buildings should be located & whether there's a limitation on that area in which they can be located
- Need human-scale
- Need vision for creating a great space
- Broadway & Third St intersection is important
- Variation in height
- Concentrate on people who live and work there & neighborhoods
- Allowing more height for the residential

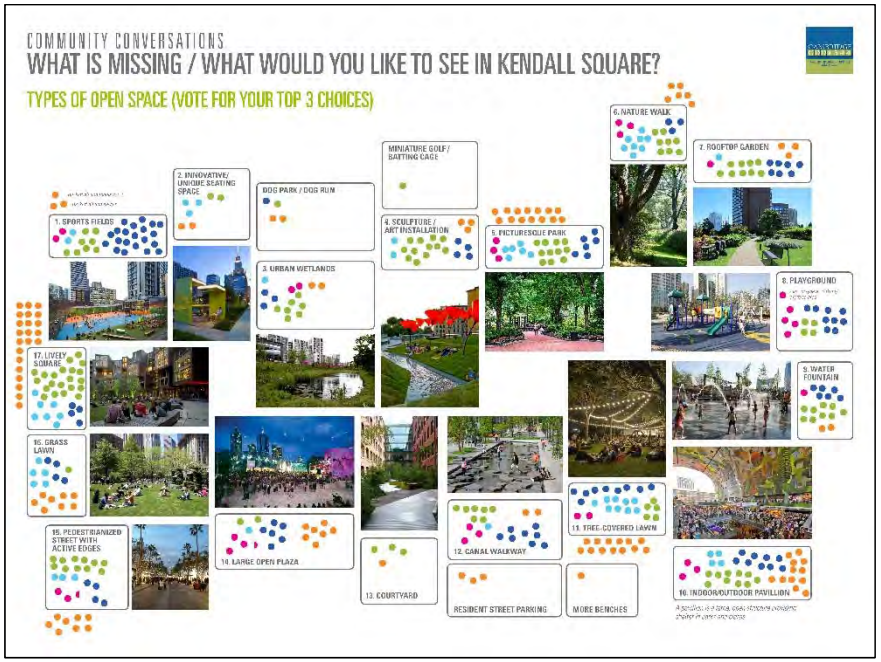
Community comments

Soliciting community feedback

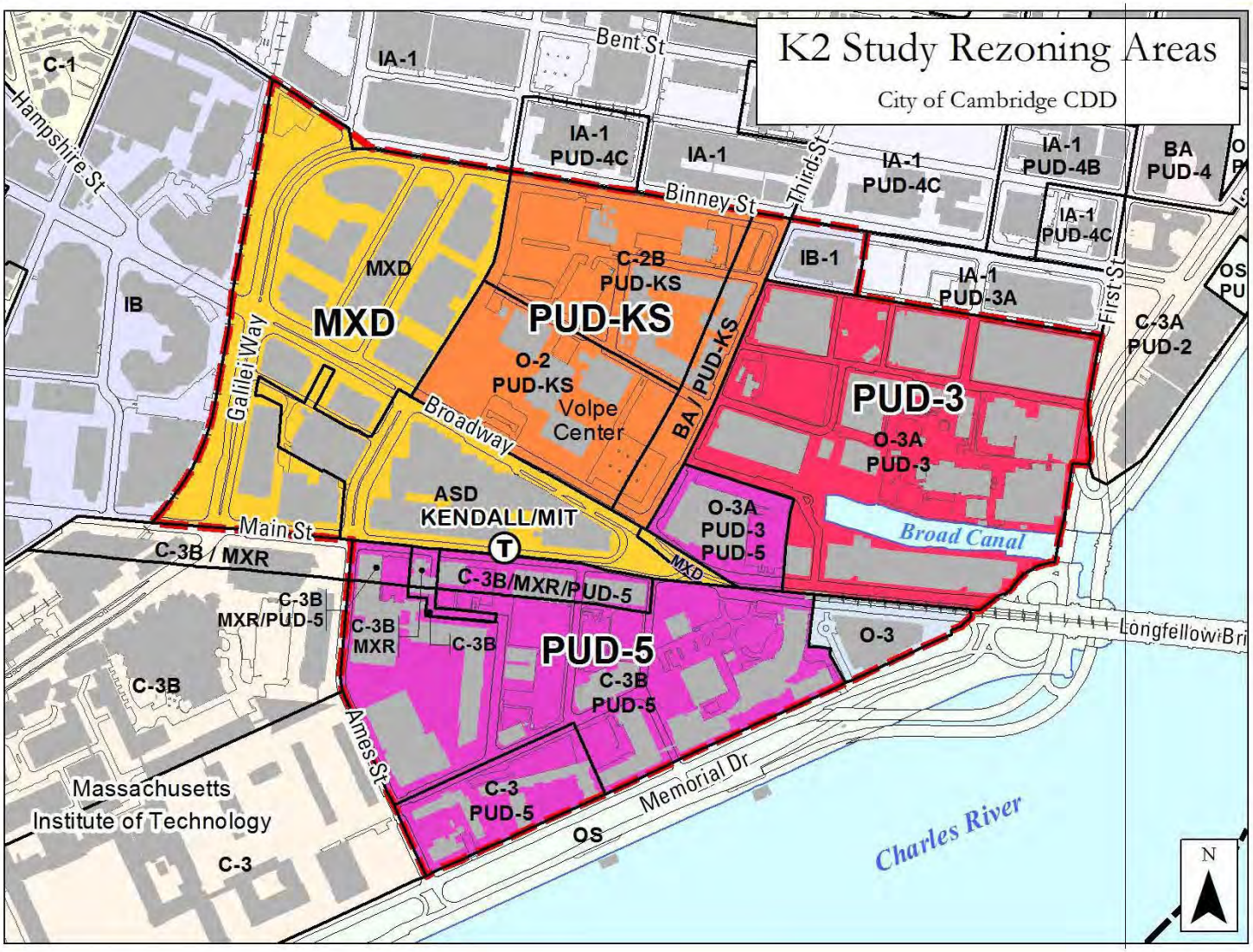
Preferred ground floor uses and amenities



Preferred types of open spaces



Zoning


K2 Study Rezoning Areas
City of Cambridge CDD
C-1
Hampshire St
IA-1
Bent St
IA-1
PUD-4C
IA-1
Binney St
Third St
IA-1
PUD-4C
IA-1
PUD-4B
BA
PUD-4
IA-1
PUD-4C
IB-1
IA-1
PUD-3A
First St
OS
PU
C-3A
PUD-2
MXD
C-2B
PUD-KS
IB
MXD
PUD-KS
O-2
PUD-KS
Volpe
Center
BA / PUD-KS
PUD-3
O-3A
PUD-3
Galileo Way
Broadway
ASD
KENDALL/MIT
O-3A
PUD-3
PUD-5
Broad Canal
Main St
C-3B / MXR
C-3B/MXR/PUD-5
MXD
C-3B
MXR/PUD-5
C-3B
MXR
C-3B
PUD-5
C-3B
O-3
Longfellow Bri
C-3B
C-3B
PUD-5
Ames St
Massachusetts
Institute of Technology
C-3
PUD-5
Memorial Dr
OS
Charles River
C-3
N

Major Proposed Modifications

- **Affordable Housing Requirements**
  15% low-moderate + 5% middle income minimum

- **Open Space**
  Detailing desired open space functions
  Limiting how much of the requirement can be met on a Federal site

- **Height**
  More flexibility in arrangement, limiting bulk at taller elevations

- **Active Uses**
  More desired ground floor uses including grocery stores, family-serving uses, small independent operators; limitations on banks

- **Urban Design**
  Urban Design Framework to inform future development review

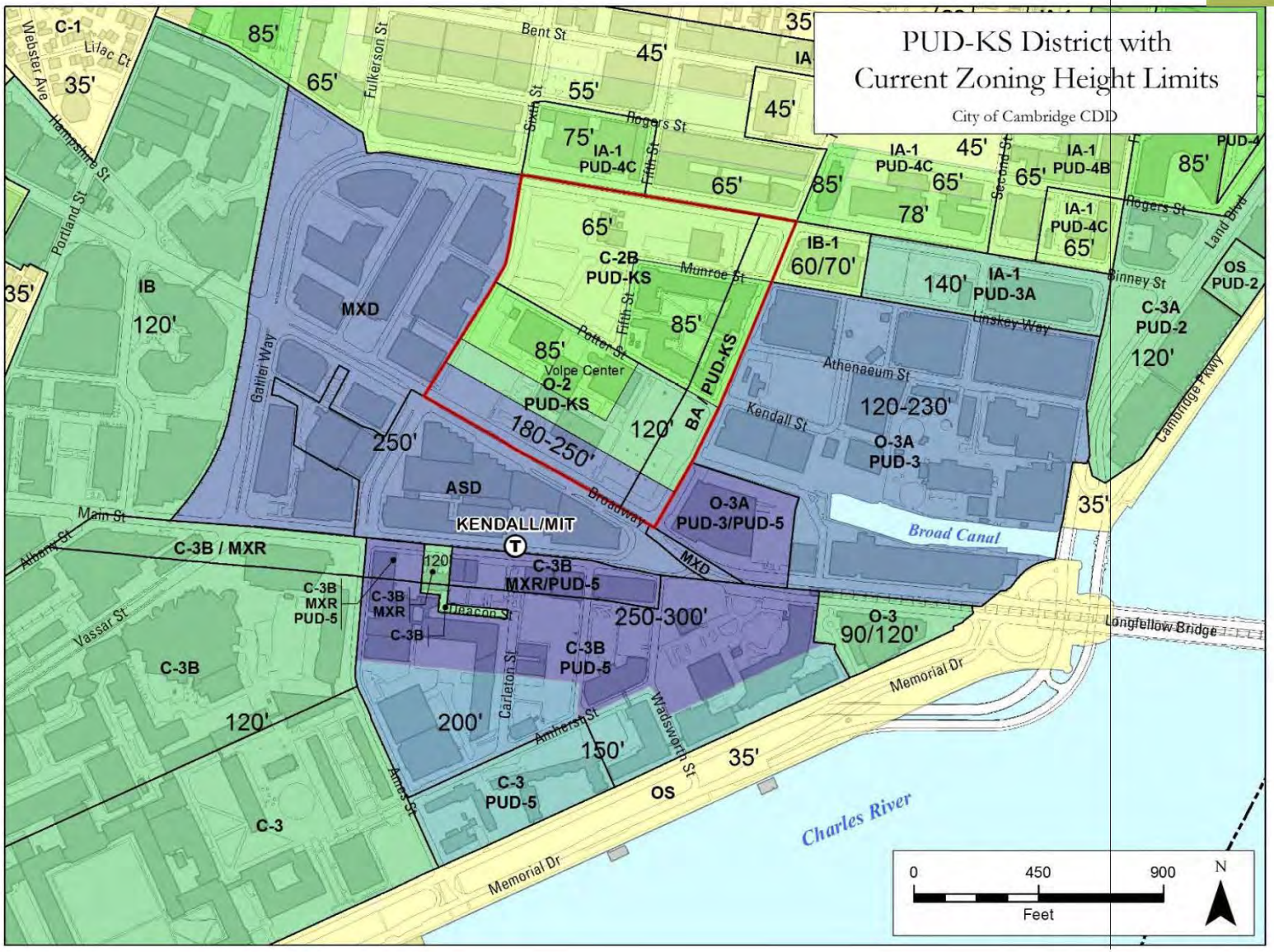
Modifications: Affordable Housing

APPROXIMATE	Current Zoning	Initial Proposal	Modifications
Total Units	879	1,014	1,014
Low-Moderate Units	101	101	152
Middle Income Units	None required	51	51
Total Affordable Units	**101**	**152**	**203**

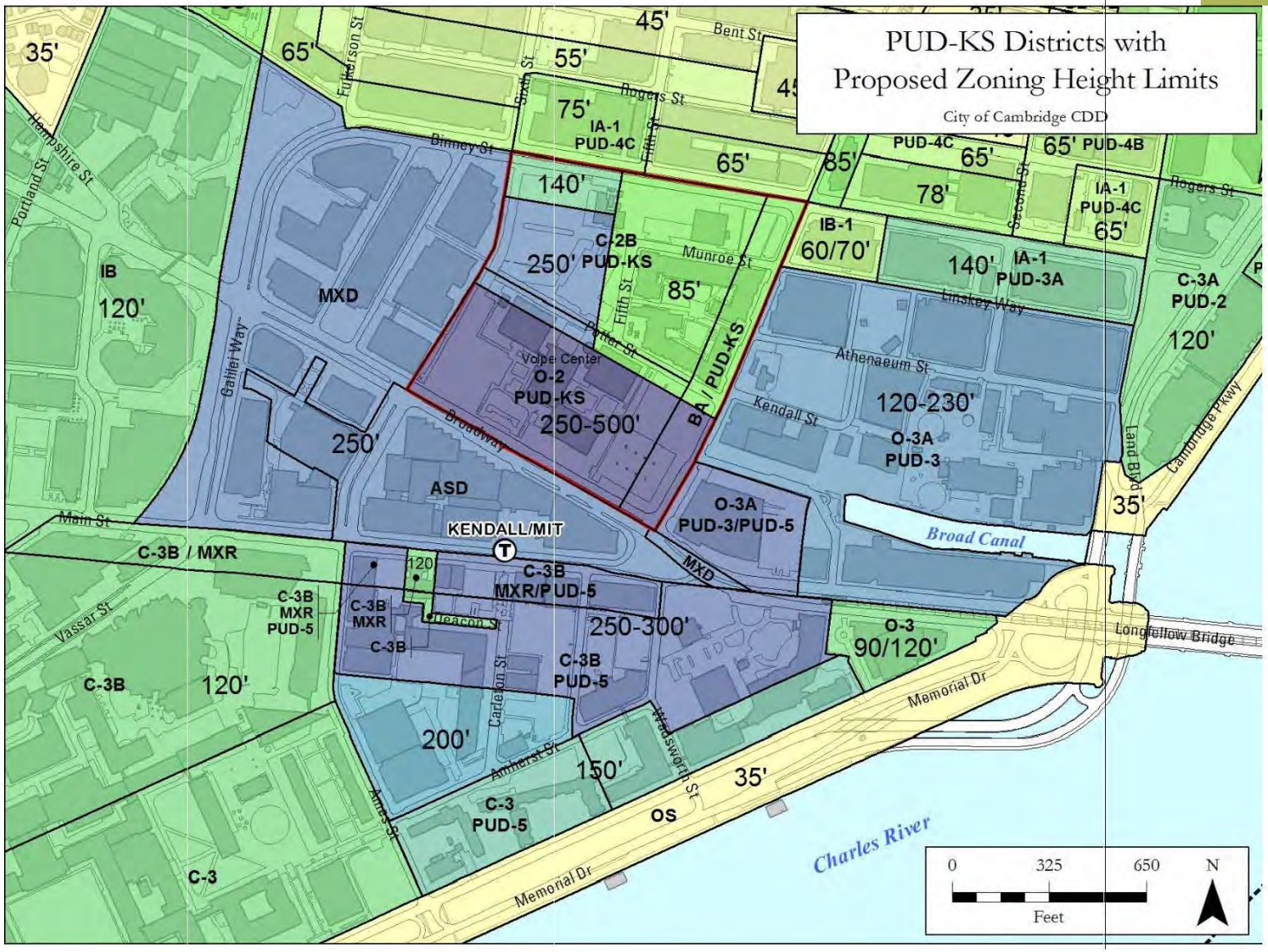
Modifications: Public Open Space

- **System:** All spaces must serve a public function, integrate with the area's open space network
- **Civic park or plaza:** Required element of the public open space system
- **Federal site:** Fulfills no more than half of requirement

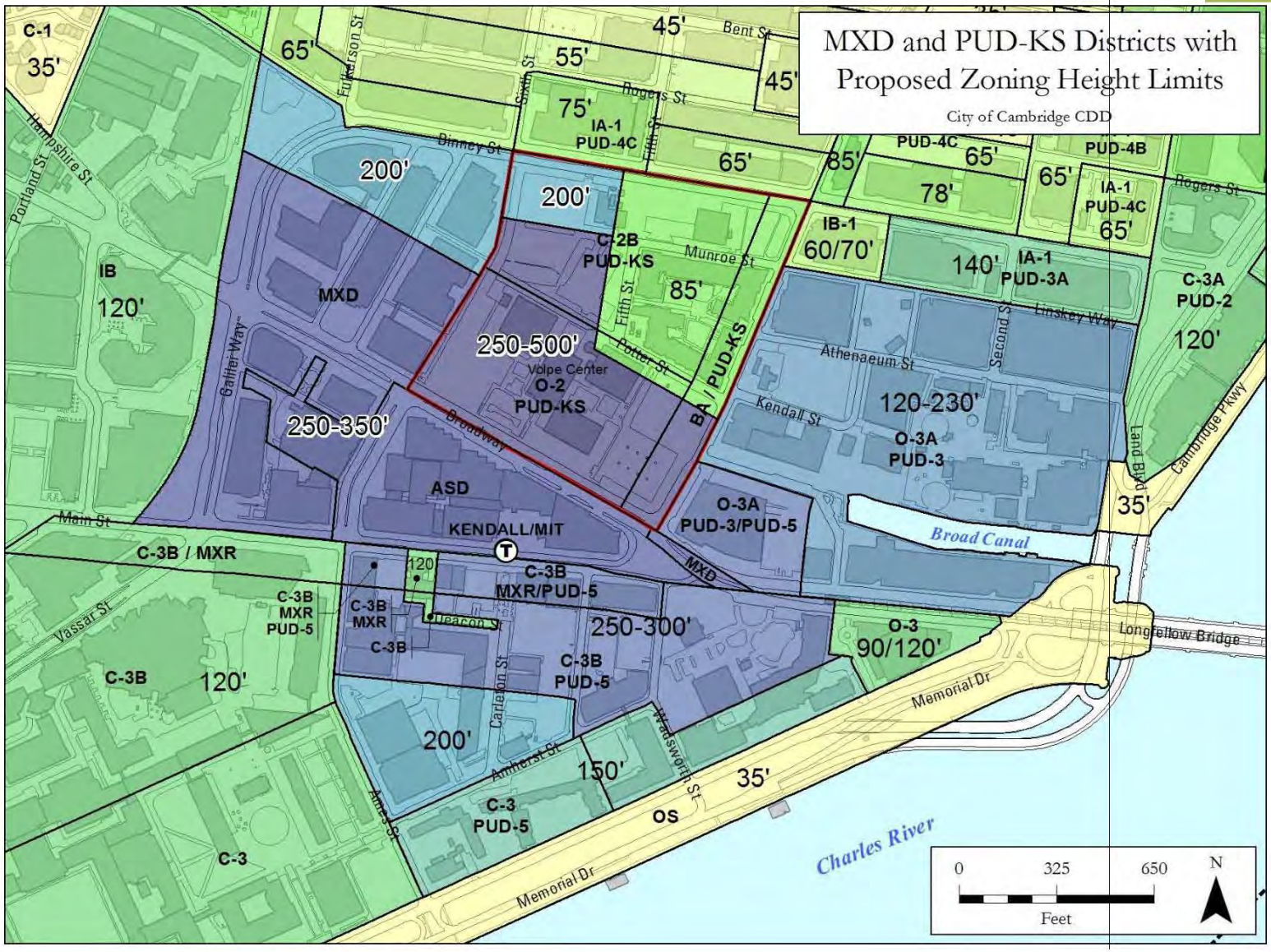
Height Limits: Current



Height Limits: Initial Petition



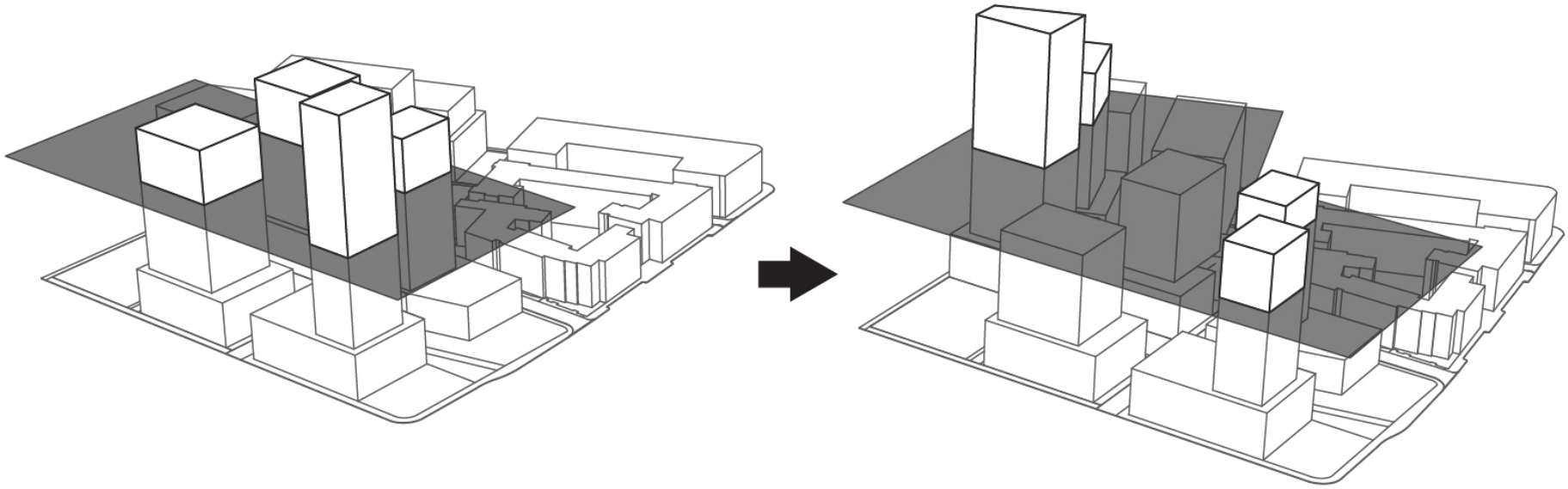
Height Limits: Proposed Modifications



Height Limits: Proposed Modifications

- **Above 250 feet:**
  No more than 15,000 SF floor plate
  No more than 10% of parcel area total (62,000 SF)

- **Above 350 feet:**
  No more than one building as a distinctive landmark
  Planning Board can reject a proposal if it does not provide the desired benefit, in favor of a plan with a 350-foot limit



Modifications: Active Ground Floors

- **Required:** 75% of frontage along major streets
- **Incentivized:** spaces of 5,000 square feet or less
- **Active Uses Must Include:** grocery, market, general store space for small operators (2,500 square feet or less)
- **Active Uses *May* Include:** child care, recreation, education and cultural uses for families
- **Active Uses May *Not* Include:** banks, office lobbies

Volpe Site: Anticipated Development

	Current Zoning	Proposed Zoning
Site Area	620,000	620,000
Residential	967,000 (min)	1,116,000 (min)
Office / Lab (not including Innovation Space)	1,086,000 (max)	1,632,000 (max)
Retail	50,000	140,000
Innovation Space (min)	0	84,000
Total Private Development	2,103,000	2,972,000
Volpe Facility (replacement)	375,000 (exist.)	375,000 (approx.)

Figures in Square Feet of Gross Floor Area. ***ALL FIGURES APPROXIMATE***

Benefits of PUD-KS Zoning Proposal (as Modified)

Housing	• 1,000 units minimum (approx.) • 150 affordable, 50 middle-income (approx.) • $20+ million in total incentive zoning payments
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Innovation Space	• 84,000 SF (approx.) at full commercial buildout
Transportation	• Cap on total parking
Sustainability	• LEED Gold + energy, stormwater requirements • Additional requirements from Net Zero Plan
Community Funds	• $16+ million total for open space programming, transit improvements, workforce readiness
Urban Design	• General K2 Design Guidelines • Site-Specific PUD-KS Urban Design Framework

PUD-KS Urban Design Framework

Background materials

Purpose

1. Visually represent the City's and the community's key goals and aspirations for the site
2. Inform the City's review process for development projects
3. Identify key principles, concepts, and ideas

PUD-KS Urban Design Framework

Vision – Volpe site

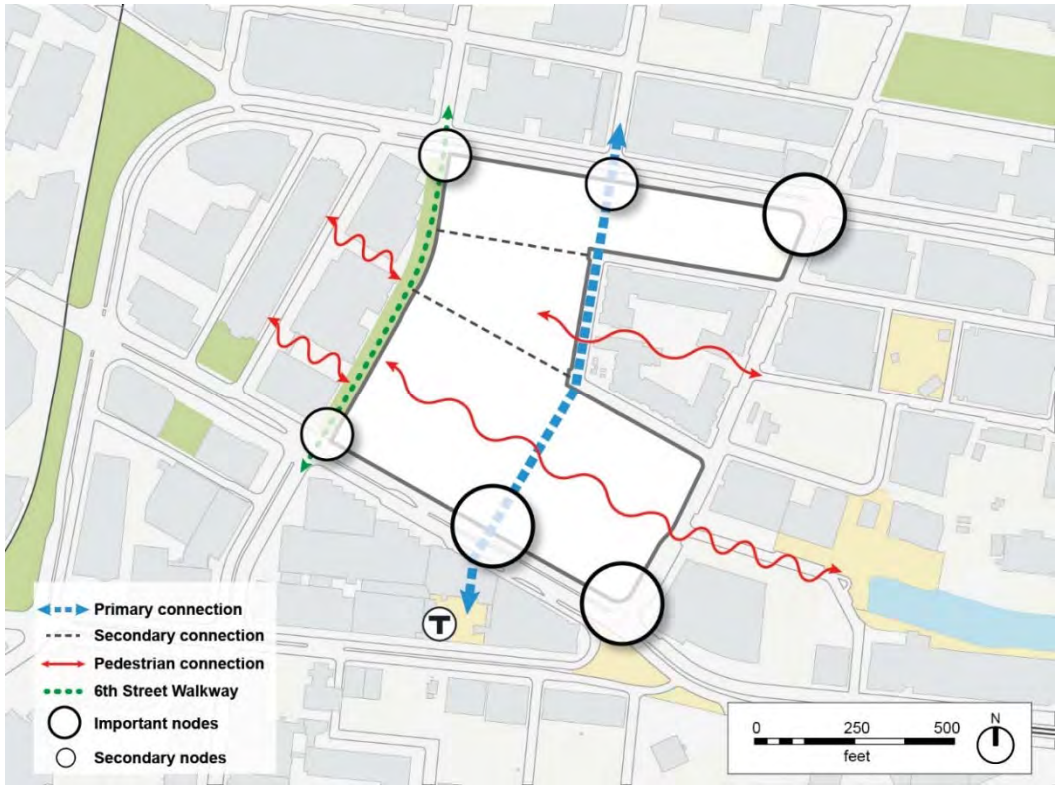
- *An **accessible, diverse** and **unique place** that **integrates** the PUD-KS district **seamlessly** into the surrounding **urban fabric** of Kendall Square and the Eastern Cambridge neighborhoods, and the **community.***
- *A place that is defined by **high quality sustainable architecture, urban design** and **open space** with an **enduring sense of place** that celebrates Kendall Square's spirit of **innovation** and **creativity.***

Framework structure

1. Connections
2. Open space
3. Active ground floors
4. Housing for families

PUD-KS Urban Design Framework

Connections

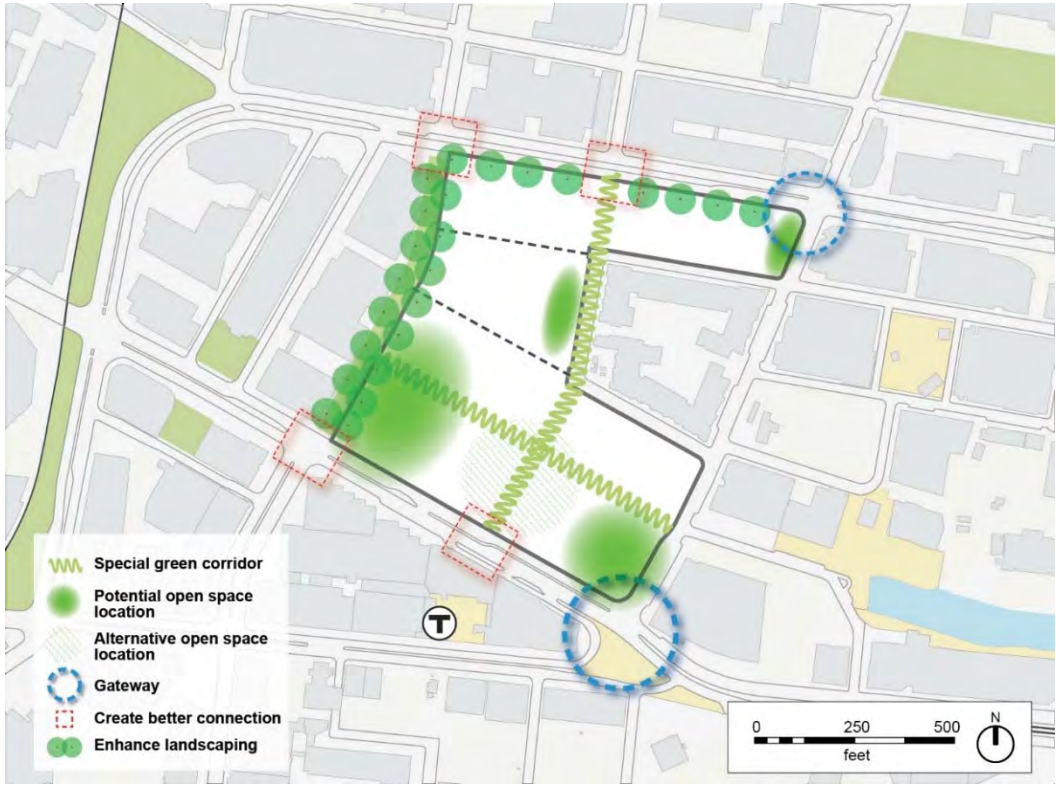


Main organizing features

1. Extend surrounding streets and connections into the site (e.g., Fifth Street and Broad Canal Way)
2. Enhancement of the Sixth Street Walkway
3. Provision of different types of connections (e.g., shared streets, multi-modal streets, bike lanes, mid-block connections, alleys etc.)

PUD-KS Urban Design Framework

Open space

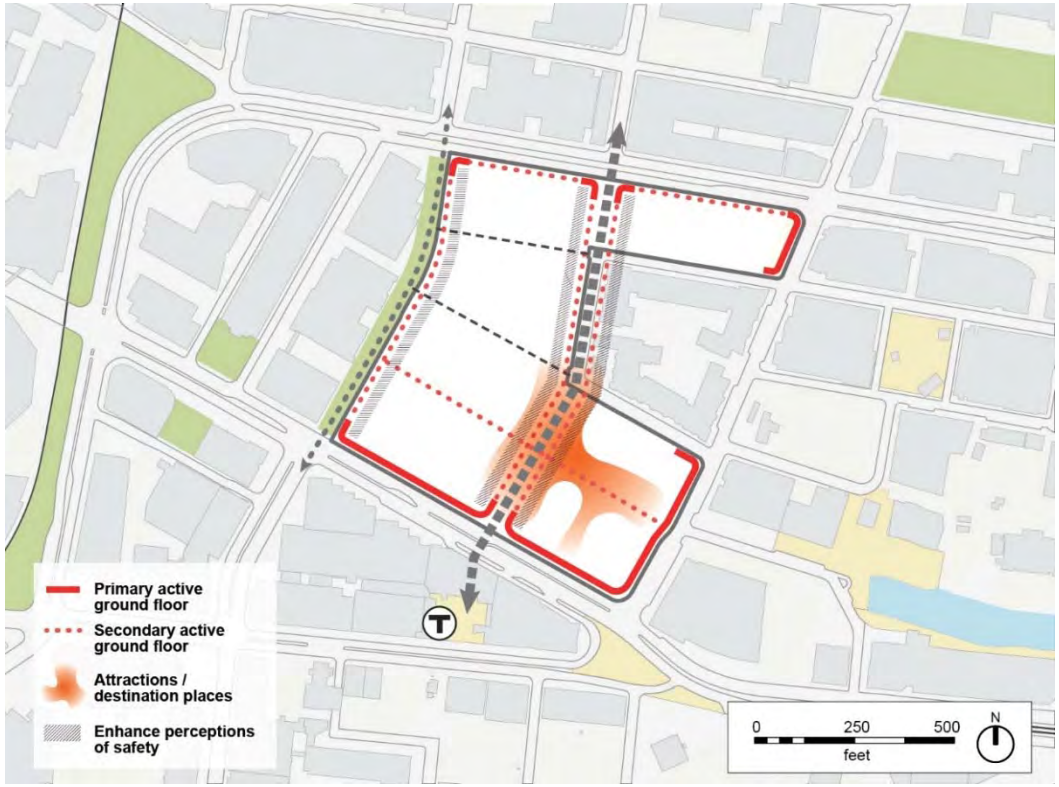


Main organizing features

1. Network of open space areas organized along the extension of Fifth Street and/or Broad Canal Way
2. The corner of Broadway and Third Street as a gateway
3. A balanced mix of lively gathering spaces and more naturalistic, passive parks

PUD-KS Urban Design Framework

Active ground floors

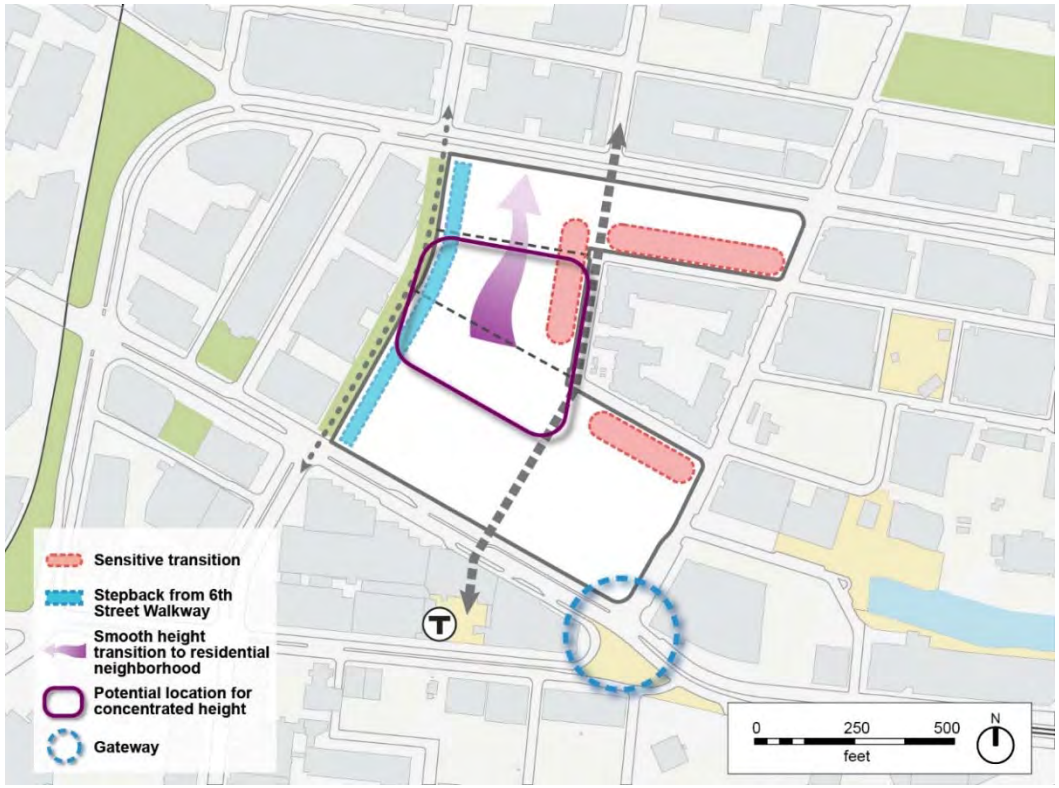


Main organizing features

1. Creating a hierarchy of streets with different activity levels
2. Concentration of destination type activities

PUD-KS Urban Design Framework

Built form



Main organizing features

1. areas and interfaces that require careful and sensitive transition to the surrounding environment

Also includes matters the Planning Board should consider when determining if a tall building is a “distinctive architectural landmark”

PUD-KS Urban Design Framework

Housing for families

1. Design objectives and guidelines to address key siting and design issues relating to housing for families with children.

PUD-KS Urban Design Framework

PUD-KS Urban Design Framework


Aerial by lesvants.com

CITY OF CAMBRIDGE, MASSACHUSETTS

PLANNING BOARD

CITY HALL ANNEX, 344 BROADWAY, CAMBRIDGE, MA 02139

Date:	November 30, 2015
Subject:	PUD-KS (Volpe Site) Rezoning Petition
Recommendation:	The Planning Board recommends ADOPTION of the petition, with suggested modifications.

To the Honorable, the City Council,

On October 20, 2015 and November 17, 2015, the Planning Board held a public hearing on a refiled petition by the Planning Board to amend Section 13.10 of the Zoning Ordinance, which controls development in the PUD-KS District in Kendall Square, the majority of which is Federal-owned land occupied by the Volpe National Transportation Systems Center. This petition was refiled after having been heard jointly by the Planning Board and Ordinance Committee on June 29 and again by the Planning Board on July 14. As the petitioner, the Board has also held many past discussions in the process of formulating the proposal. In addition to hearing public comment, the hearings and discussions on this project allowed the Board to also hear about the City Council's priorities and these have informed the Board's consideration and recommendation.

The Board strongly supports adoption of this zoning proposal as an advancement of the Kendall Square (K2) planning study conducted by the city in 2011-2012. This study supported increasing the capacity for growth in Kendall Square as a whole, given its importance to the economy of Cambridge and the region, while leveraging desired improvements to the area including a significant amount of new housing, active ground floor spaces to bring life to the streets, retail, open space and other community uses that will help make Kendall Square a destination for residents of surrounding neighborhoods, innovation space that provides opportunities for small emerging businesses to find a place in Kendall Square, high standards for sustainable design and development, parking limits to reduce reliance on automobile travel, and funding contributions to support public space programming, transit improvements and workforce readiness.

Within the broader context of Kendall Square planning, the PUD-KS district is unique in that it includes one of the few large sites that has remained unchanged for the past several decades while the rest of Kendall Square has experienced substantial transformation. The 14.2-acre Volpe site is one of the last best opportunities to accommodate future commercial development, housing, public space, retail and other uses within the part of Cambridge that is best suited for growth. Since the publication of the K2 study, the U.S. General Services Administration (GSA) and Department of Transportation (DOT) have announced an effort to develop the site in a way

that would provide a new home for the Volpe Center in exchange for development of the rest of the site for private uses subject to the City's zoning and development review processes.

The Board supports the goal of providing a great new facility for the Volpe Center in Kendall Square, as it is a public institution performing cutting-edge research that benefits the entire country. The Board also believes that this process provides an opportunity for the City, through its planning and zoning, to express the City's objectives for the site before developers submit their proposals to the GSA. Even if the City adopts zoning changes setting overall expectations at this early stage, a selected developer may still request further zoning changes that would require review and negotiation with the Council.

The Board acknowledges that this opportunity is not a guaranteed success. No change has occurred under current or previous iterations of the zoning for this site. The success of a redevelopment plan relies on the willingness of the Federal government to pursue it, which is jeopardized by the unpredictability of political change at the Federal level. If the current plan fails, it is difficult to predict what other plans may be devised for the site.

Additionally, the Board received information from a high-level financial analysis prepared with the assistance of the Cambridge Redevelopment Authority (CRA) and their economic consultants. Though this analysis relied on many unknown factors, it shows that the value of a development under the current zoning proposal could be at an approximate scale that would likely enable the construction of a new Volpe facility and other public site improvements, but does not appear to result in a large "giveaway" to a private developer.

Modifications

At the November 17 hearing, staff prepared a set of suggested modifications to the zoning that respond to comments made at the previous Planning Board and Ordinance Committee hearings, as well as conversations held with community members throughout the summer and fall. In its recommendation, the Board endorses these modifications with some changes, as described below and specified in the attached revised zoning text.

- Affordable Housing: The revision to increase the minimum percentage of affordable low-to-moderate income housing to 15% of total housing, and to continue to require 5% of total housing to be affordable to middle-income households, is a strong improvement and would set a high standard for affordable housing that is fully supported by private market development.

- Open Space: The results of the *Connect Kendall Square* planning competition, and the site studies provided in the Urban Design Framework (discussed below), demonstrate that public spaces of significant size and quality could be created under the proposed zoning. The suggested changes improve the petition by providing detail about the desired connections and functions of open space, particularly in identifying the alignment of the Broad Canal and the Sixth Street walkway as ideal opportunities for new and improved public space. The extension of the Broad Canal as a true water feature is seen as a great opportunity; however,

the Board would suggest including this as a guideline for development rather than a zoning requirement.

The Board also supports limiting the amount of open space that can serve to fulfill the public open space requirement on a Federal-owned lot, but recommends setting that limit at 20% of the total requirement, to be more proportional with the expected size of the Federal facility if the rest of the site were redeveloped.

Many community members have expressed the goal of increasing the overall amount of public open space. The Board agrees with this goal, but does not recommend increasing the minimum public open space requirement in the zoning above 25%, which is already the highest open space requirement for a major redevelopment area. The Board would endeavor to seek the best open space result during the development review process, but is concerned that setting the zoning requirement too high might force urban design outcomes that are problematic for other reasons. If the Council decides it is appropriate to increase the minimum requirement in order to set a higher expectation for open space, the Board would recommend flexibility in the zoning language so that the Planning Board could approve modifications during the development review process if it results in a better outcome, but in no case resulting in less than 25% public open space.

- Height: The Board supports the staff suggestion for the zoning to allow greater flexibility in the distribution of heights while limiting building height and bulk above 250 feet. However, in order to have the opportunity to consider better urban design options at the development review phase, the Board would suggest allowing the Planning Board to modify the floor plate limitations above 250 feet and the number of buildings allowed to exceed 350 feet if it achieves a better result. In any case, the Board does not recommend allowing heights greater than 500 feet.

- Active Ground Floors: The Board supports the staff modifications to better specify the types of desired uses, including grocery/convenience/general merchandise stores, space devoted to smaller retail operators, and community-serving spaces such as child care, cultural institutions and indoor play space.

- Urban Design: The Board appreciates the creation of an Urban Design Framework by staff, which illustrates the priorities that should be part of the review of a development plan, including connections, open space, active ground floors, overall built form, and housing for families. Along with the K2 Design Guidelines, these should be viewed as an expression of overall goals and objectives, and should not be seen to specify the exact location and form of buildings. The Board should have the flexibility to consider options during the development review process and to arrive at a result that is feasible from a development standpoint while meeting the public's overall expectations.

  One key element of the Board's recommendation is to include an early consultation with the Planning Board as part of any development plan before the submission of a formal Development Proposal. This would provide an opportunity for the Board to consider the

possibilities for the siting, orientation, height and massing of buildings as well as the location of public spaces and connections, and to provide feedback before a developer begins the process of assembling the materials that will be required for the formal Development Proposal application and review process. Current zoning already allows for a developer to request such a consultation as part of any PUD review process. In this case the Board would want to require such a consultation.

The Board also stresses in its recommendation that architectural quality should be a major consideration in the PUD review process, especially for taller buildings that will be more prominent within the area.

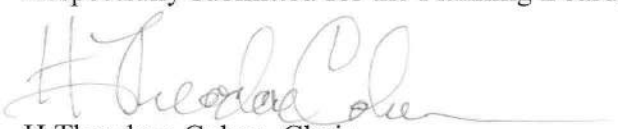
- Transportation: At the November 17 hearing, the Board heard additional information on potential transportation impacts of development not just on the Volpe site but throughout the area studied in the K2C2 process. This information revisited the assumptions that were made during that study, looking at potential scenarios in which development occurs at a faster rate than anticipated in 2011, and assessed what additional impacts might need to be considered.

  One of the variables discussed in this study is that predicted traffic impacts from commercial development can vary widely based on whether space is occupied by lab uses, which tend to have lower employee density, or office uses, which tend to have higher employee density. In order to normalize this difference in impact, the Board recommends setting the same maximum parking ratio for office and lab uses, using the more restrictive standard of 0.8 space per 1,000 square feet, which would further limit overall traffic impact.

  However, the larger concern in the Board's opinion is the impact on transit. The impacts on traffic will be limited by the current capacity of the regional road system, which is not likely to expand significantly. The transit system, particularly the Red Line, is the best opportunity to support future growth in Kendall Square, but the system faces obvious challenges with the current capacity and reliability of service. While improvements are technologically feasible, they will require financial and organizational resources to achieve.

  The current zoning language specifies the need to perform a traffic study and to incorporate a program of transportation mitigation improvements into a Final Development Plan. At the suggestion of staff, the Board recommends updating that language to require a more robust transportation study and transportation mitigation program that accounts for the entire transportation network in the area, including transit along with other modes of transportation. This type of program would incorporate requirements into the phasing of a project based on determined thresholds, so that required improvements would keep pace with anticipated development impacts.

Respectfully submitted for the Planning Board,



H Theodore Cohen, Chair.

13.10 PUD AT KENDALL SQUARE: DEVELOPMENT CONTROLS

13.11 *Purpose*. The PUD-KS district is intended to provide for the creation of a vibrant mixed-use district of high quality general and technical office and retail activity, with ~~a~~ significant components of residential use and open space. The retention of government office facilities on the site is desired, as well as space for smaller innovation companies as a component of the commercial office space that is created. The creation of public open space to serve residents of the district and the larger neighborhood, as well as workers, students from nearby institutions and visitors, ~~a large public park~~ is desired. The PUD-KS district permits larger scale development and supporting commercial activities close to Kendall Square and the major public transit services located there. It encourages strong linkages between new development at Kendall Square, the East Cambridge riverfront, and the PUD-KS area and the neighborhoods of eastern Cambridge, facilitated in part by a strong and continuous retail presence along Third Street and Broadway. Development in the PUD-KS district is expected to meet high standards for urban design, **architectural design,** environmental sustainability and open space design and should be generally consistent with the policy objectives set forth in the Kendall Square Final Report 2013 (K2 Plan) ~~Eastern Cambridge Plan~~ and ~~the guidance provided in~~ with the ~~Eastern Cambridge~~ Kendall Square Design Guidelines.

13.11.1 *Master Plan Area.* To further the purpose of this Section 13.10, any Development Parcel or portion of a Development Parcel meeting the requirements set forth in Section 13.13.2 below and that is at least five (5) acres in area may be designated as a Master Plan Area, within which physical information shall be presented in a more generalized way, subject to more detailed approval by the Planning Board at a time and in a manner determined by the Board in its PUD special permit decision.

13.11.2 *Master Plan Requirements.* At a minimum, a Development Proposal for a Master Plan Area must contain the following components:

a. Site Development Plan – identifying each of the proposed existing and new building sites within the Master Plan Area and the characteristics of each, including potential uses and Gross Floor Area.

b. Site Massing Plan – illustrating the height and massing of building volumes for each proposed building site, and including studies of anticipated shadow and wind impacts resulting from building mass.

c. Parking and Loading Plan – identifying the locations of all parking facilities, bicycle parking facilities and facilities for loading or other vehicular service functions, and the number of spaces proposed at each location.

d. Connectivity Plan – illustrating all pedestrian, bicycle and vehicular circulation routes within the Master Plan Area, their connections to public circulation routes and destinations outside the Master Plan Area, and approximate locations of access and egress points on each building and parking facility within the Master Plan Area.

e. Open Space Plan – illustrating and quantifying the areas of all proposed open space and the ownership and designation of each area (e.g., Public Open Space, Publicly Beneficial Open Space) as well as descriptions of major design elements and themes to be incorporated into each space and the types of uses and activities that will be

accommodated in each space.

f. Ground Floors Plan – illustrating the conceptual arrangement of functions such as retail establishments and other active uses, residential and office lobbies, and utility spaces at the ground floor of each building in the Master Plan Area, including the locations and sizes of retail and other active uses that may be required or incentivized by the specific provisions of this Section 13.10.

g. Housing Plan – providing the approximate number and mix of housing unit types proposed on each residential site, and identifying the location of dwelling units that may be required or incentivized by specific provisions of this Section 13.10.

h. Phasing Plan – describing the general sequence in which development is proposed to proceed, and specifically describing how the phasing requirements set forth in this Section 13.10 will be met.

13.11.3 *Master Plan Approval.* The Planning Board shall grant a PUD special permit for a Master Plan Area upon finding that the Final Development Plan is consistent with the criteria set forth below, in addition to all other criteria applicable to approval of a Final Development Plan and any other special permits being sought, and upon consideration of the K2 Plan, Kendall Square Design Guidelines, PUD-KS ~~Site Planning and Design Guidelines~~ **Urban Design Framework** and other City plans and guidelines applicable to Kendall Square. The PUD special permit may identify specific components of the development (such as building design, open space design and other elements) as well as specific modifications to the Final Development Plan that may be subject to future approval by a written determination of the Planning Board. Otherwise, any modifications to a Final Development Plan for a Master Plan Area shall be considered pursuant to the PUD Amendment provisions set forth in Section 12.37 of this Zoning Ordinance.

13.11.4 *Master Plan Criteria.* A Final Development Plan for a Master Plan Area shall meet the following objectives, subject to approval by the Planning Board:

(1) Providing a mix of commercial, including research and technology, and residential uses, with particular emphasis on housing and ground-floor retail, to encourage activity throughout the day and evening.

(2) Incorporating a diversity of housing typologies and dwelling sizes that are appealing and accessible to a variety of users.

(3) Breaking up large blocks to increase permeability and create a fine-grained network of connections that seamlessly integrates the PUD district with the surrounding urban fabric of Kendall Square and East Cambridge.

(4) Sensitively managing the height and bulk of new buildings to mitigate impacts on surrounding uses and public space.

(5) Creating an integrated network of high-quality streets and open spaces, including significant space for public gathering and recreation, that encourages and fosters a sense of community, civic engagement, social interaction, economic development and environmental sustainability.

(6) Providing a strong street edge on major public streets, including Broadway and Third Street, to create a memorable “main street” experience.

(7) Providing active ground floors that animate streets and open spaces, and add to the vitality of Kendall Square.

(8) Enhancing the architectural diversity of the district to harness the spirit of innovation and creativity in Kendall Square.

(9) Promoting environmental sustainability in building and site design.

13.11.5 *Pre-Application Conference*. In the course of preparing a Development Proposal for a Master Plan Area, the developer shall be required to participate in at least one PUD Pre-Application Conference as established in Section 12.33 of this Zoning Ordinance. The purpose of the conference will be to discuss conceptual alternatives for site arrangement, building massing, circulation systems and public space arrangement, and for the developer to receive informal feedback from the Board prior to preparing the materials required in Section 13.11.2. As set forth in Section 12.33.2, any statement made by the Planning Board or developer at the Pre-Application Conference shall not be legally binding. Notwithstanding Section 12.33.3, the developer shall present graphic and written materials as needed to illustrate and describe conceptual development alternatives.

13.12 *Uses Allowed in a PUD-KS District*. The uses listed in this Section 13.12, alone or in combination with each other, shall be allowed upon permission of the Planning Board. The amount and extent of uses may be further regulated and limited as set forth elsewhere in this Section 13.10.

13.12.1 Residential Uses

(1) Townhouse Development. Any special permits for parking arrangements for townhouse development required by Section 11.10 shall be granted by the Planning Board in a Planned Unit Development in a PUD-KS district.

(2) Multifamily dwellings.

13.12.1.1 Transient Residential Uses

For the purposes of this Section 13.10, the following Transient Residential Uses shall be considered non-residential uses

(1) Hotels or motels

13.12.2 Transportation, Communication, Utility and Institutional Uses. All uses listed in sections 4.32 and 4.33 and which are allowed or conditionally allowed in the base zoning district. Telephone exchange use set forth in 4.32 g (1) shall be permitted provided that any facility having a floor area greater than four hundred (400) square feet shall only be permitted in a building in existence as of June 1, 2001 that, if vacant, has not been occupied by a residential use in the five years immediately preceding the time of application for a Certificate Of Occupancy for the proposed use, or if occupied, the current use is any office and laboratory use, Section 4.34; any retail business and consumer service establishment, Section 4.35; any light industry, wholesale business or storage use, Section 4.37; or any heavy industry use, Section 4.38.

13.12.3 Office and Laboratory Uses. All uses listed in Section 4.34.

13.12.4 Retail Business and Consumer Service Establishments. **All uses listed in Section 4.35**~~The following retail uses shall be permitted, provided that the total amount of retail Gross Floor Area (GFA) in the District PUD does not exceed 70,000 square feetfive percent (5%) of the total GFA in the PUD and no individual establishment exceeds ten thousand (10,000) square feet of Gross Floor AreaGFA unless the Planning Board determines in writing that more retail GFA and establishments of a greater size better serve the residents within the PUD district and in adjacent districts and better advance the policies set forth in the Eastern CambridgeK2 Plan and the Eastern CambridgeKendall Square Design Guidelines.~~

~~(1) Store for retail sale of merchandise~~

~~a. Establishment providing convenience goods such as drug stores, food stores, tobacco, newspaper and magazine stores, variety stores, and liquor stores.~~

~~b. Other retail establishments~~

~~(1)~~(2) ~~Stationery and office supply store.~~

~~(2)~~(3) ~~Printing and reproduction service establishment, photography studio.~~

~~(3)~~(4) ~~Other store for retail sale of merchandise located in a structure primarily containing non-retail use provided no manufacturing, assembly or packaging occur on the premises.~~

~~(4)~~(5) ~~Barber shop, beauty shop, laundry and dry-cleaning pick-up agency, shoe repair, self-service laundry or other similar establishments.~~

~~(5)~~(6) ~~Restaurants or other eating and drinking establishments listed in Subsection 4.35 e, f, and g.~~

~~(6)~~(7) ~~Theater or hall for public gatherings.~~

~~(8) Art/Craft Studio~~

~~(9) Bakery, Retail~~

13.12.5 Institutional Uses. All uses listed in Section 4.33 f and g.

13.12.6 Other Uses. Any use not listed in subsections 13.12.1 through 13.12.4, otherwise allowed in a Business B District may be allowed by the Planning Board only upon written determination by the Board that such use is consistent with the objectives of the PUD-KS district and the policies and guidelines set forth in the ~~ECaPS~~K2 Plan.

13.13 *District Dimensional Regulations*.

13.13.1 Permitted FAR. In the PUD-KS District the maximum ratio of floor area to Development Parcel shall be ~~3.0~~ 4.5, subject to the further use limitations set forth below in Section 13.13.11. For the purposes of calculating FAR, the GFA of the following uses shall be exempt from the requirements of this Section 13.13.1:

(1) GFA devoted exclusively to a use designated as Other Government Facility in the Table of Use Regulations on a Government Owned Lot, as set forth in the provisions of Section 13.112 below. Notwithstanding such exemption, a Government Owned Lot can be included in calculating the area of a Development Parcel.

(2) GFA devoted to ~~retail and consumer service~~ uses **that are listed among the Required Active Uses in Section 13.111.1 of this Ordinance, up to a maximum exemption of five percent (5%) of the non-exempt GFA in a Final Development Plan**, provided the GFA is located on the ground floor or basement level, is clearly identified within the Active Use Plan as described in Section 13.111.1 below (though the exempt GFA may exceed the required Active Use), fronts on and has a public entrance onto a public street, park, or plaza, and for each individual establishment the GFA does not exceed 5,000 square feet. The Planning Board may approve such an exemption for a space of a larger size if it is devoted to a particular type of retail that is desired in the neighborhood but requires a larger space to be feasible.

(3) Fifty (50) percent of the GFA devoted to innovation office space, up to a maximum of five (5) percent of non-residential GFA in a Final Development Plan, as described in Section 13.111.3.3 below.

(4) Private outdoor decks or balconies for multi-family residential development, up to eight percent (8%) of the residential GFA of any building.

13.13.1.1 Limitations on Non-Residential Development. In the PUD-KS District all non-residential uses shall be further limited as set forth below. Where the amount of non-residential GFA is limited to a percentage of the total GFA authorized, the calculation shall be based on GFA authorized exclusive of ~~any GFA that may be constructed as a result of the application of the FAR bonuses permitted in Section 11.200 or~~ any GFA devoted exclusively to structured parking.

(1) For any lot or combination of lots held in common ownership as of June 1, 2001 having in total an area of less than five acres, the total GFA devoted to non-residential uses shall not exceed ten (10) percent of the total GFA ~~authorized in a PUD~~, exclusive of GFA exempted in Section 13.13.1 above**,** for that portion of a PUD Development Parcel containing such lot or lots, or any portion thereof. This limitation shall apply to each Development Parcel individually. This limitation shall not apply to any individual lot created subsequent to the Planning Board's approval of the PUD Final Development Plan.

~~Notwithstanding the above limitations, additional non-residential GFA shall be permitted as set forth in Paragraph (3) below.~~

(2) For any lot or combination of lots held in common ownership as of June 1, 2001 having in total an area of more than five (5) acres, the total GFA devoted to non-residential uses shall not exceed sixty (60) percent of total GFA authorized, exclusive of GFA exempted in Section 13.13.1 above~~, inclusive of any GFA otherwise exempt from the provisions of the Cambridge Zoning Ordinance in a PUD for that portion of a PUD Development Parcel containing such lot or lots, or any portion thereof. This limitation shall not apply to any individual lot created subsequent to the Planning Board approval of the PUD Final Development Plan~~. The limitations set forth in this Section 13.13.1.1(2) shall not apply to any individual lot within a Development Parcel created subsequent to the Planning Board approval of the PUD Final Development Plan.

The Final Development Plan shall include a Phasing Plan providing a general sequence for the construction of residential and non-residential uses. The Planning Board shall approve such a Phasing Plan if it is found to ensure that residential uses will be completed on a schedule that meets the objectives of the City and ensures compliance with the requirements of this Paragraph (2). In general, non-residential development shall not be authorized to

exceed sixty percent (60%) of the total non-exempt GFA permitted for non-residential uses until substantial construction activity of residential uses has commenced. Full completion of the permitted non-residential GFA shall not be allowed before the full permitted residential development has been completed or substantial construction activity has commenced. The Planning Board may approve variations to the standards in this Paragraph if the Phasing Plan is found to be in general conformance with the intent of this Paragraph.

13.13.1.2 Special ~~Affordable~~ Housing Provisions. For any lot or combination of lots held in common ownership as of June 1, 2001 having in total an area of more than five (5) acres, the following requirements shall apply in place of the Inclusionary Housing requirements set forth in Section 11.200 of this Zoning Ordinance.

a. Notwithstanding anything to the contrary in this Ordinance, no less than ~~ten~~ **fifteen** percent (~~10%~~**15%**) of the total floor area devoted to private residential dwelling units shall be devoted to Affordable Units in accordance with the definitions and procedures set forth in Section 11.200 of the Zoning Ordinance. Such Affordable Units shall be distributed evenly throughout all residential buildings within the PUD.

b. In addition to the Affordable Units specified in Paragraph (a) above, no less than five percent (5%) of the total floor area devoted to private residential dwelling units shall be devoted to Middle Income Units. In a Master Plan Area, such Middle Income Units may be located in one or more residential buildings, provided that buildings containing Middle Income Units are identified in the Housing Plan and Phasing Plan. For the purposes of this Section 13.13.12, Middle Income Units shall be defined as residential dwelling units for which:

   i. the occupancy is restricted to households whose total income ~~exceeds eighty percent (80%) but~~ does not exceed one hundred twenty percent (120%) of the median income of households in the Boston Standard Metropolitan Statistical Area adjusted for family size, or such other equivalent income standard as may be determined by the Board of Trustees of the Affordable Housing Trust ~~Fund~~; and

   ii. the rent (including utilities) does not exceed thirty percent (30%) of the income of the renting household or, in the instance of home ownership units, the monthly mortgage payment (including insurance, utilities and real estate taxes) does not exceed thirty percent (30%) of the income of the purchasing household, or such other ~~equivalent~~ reasonable alternative pricing standard as may be determined by the Board of Trustees of the Affordable Housing Trust ~~Fund~~.

   iii. The purpose of Middle Income Units is to provide housing opportunities for households whose total income is in the range of eighty percent (80%) to one hundred twenty percent (120%) of the median income of households in the Boston Standard Metropolitan Statistical Area adjusted for family size. However, within the strict limitations of Paragraphs (i) and (ii) above, the Planning Board may approve an alternative income targeting standard for Middle Income Units in any component of a Final Development Plan upon making a written determination that an alternative standard is necessary to ensure adequate ongoing occupancy for the required Middle Income Units, based on evidence and advice provided by the Affordable Housing Trust.

c. In general, Affordable Units and Middle Income Units shall be provided in accordance with the Standards for Construction and Occupancy set forth in Section 11.204 of this Zoning Ordinance. As an exception, to serve the objective of providing additional two-bedroom

and three-bedroom units suitable for families with children, the Planning Board may approve a Final Development Plan providing Affordable Units and Middle Income Units that are, on average, larger in area than the other dwelling units in the building. Where such units are larger in size, they may be accordingly fewer in number, provided that the requirements in Paragraph (a) and (b) are met. Nevertheless, Affordable Units and Middle Income Units shall be reasonably distributed throughout a building and may not have different interior or exterior finishes from other units, and occupants shall have access to common amenities available to other residents of the building. For a Master Plan Area, the Housing Plan component of a Development Proposal must indicate the approximate mix of unit types and sizes for Affordable Units and Middle-Income Units in each residential building if the units are not proposed to be distributed proportionally within each building.

d. Notwithstanding the provisions of Section 11.203.2 of the Inclusionary Housing requirements, no increase in Floor Area Ratio or Gross Floor Area beyond the limitations set forth in Section 13.13.1 shall be provided for a PUD subject to the requirements of this Section 13.13.1.2.

e. Notwithstanding paragraphs (a) through (d) above, if the Inclusionary Housing requirements applicable citywide are amended subsequent to June 1, 2015 such that more than fifteen percent (15%) of the total floor area devoted to residential units must be devoted to Affordable Units, or such that more than twenty percent (20%) of the total floor area devoted to residential units must be devoted to any combination of Affordable Units or Middle Income Units, then those citywide Inclusionary Housing requirements shall supersede the requirements of this Section 13.13.1.2.

f. New housing shall include a range of dwelling unit types and sizes. At a minimum, five percent (5%) of the residential Gross Floor Area in a Final Development Plan shall be devoted to dwelling units with three bedrooms or more, **which shall be designed to accommodate families with children.**

~~Notwithstanding the above limitations, additional non-residential GFA shall be permitted as set forth in Paragraph (3) below.~~

~~At least ninety-five (95) percent of the authorized non-residential GFA must be located on the portion of said lot or lots having an Office 2 base district designation.~~

~~However, where circumstances related to the transfer of property from the federal government to other governmental or private entities (for the purpose of private development on a portion or all of the land in the control of the federal government) the Planning Board may in its discretion approve a Final Development Plan providing GFA in excess of sixty (60) percent of the authorized GFA in the PUD provided it is conclusively demonstrated to the Planning Board that all residential GFA required to be developed on such lot or lots in their entirety, by this Paragraph, has already been constructed.~~

~~(3) For the entire PUD-KS district, the first 50,000 square feet of retail and customer service uses authorized in total in all approved PUDs shall not be counted toward the non-residential GFA limitations of Paragraphs (1) and (2) above provided the GFA is located on the ground floor of a multistory building, fronts on and has a public entrance onto Third Street, Broadway, or a public park, and for each individual establishment the GFA does not exceed 10,000 square feet.~~

13.13.2 Minimum Development Parcel Size. The minimum size of a Development Parcel within the PUD-KS shall be the greater of (1) 40,000 square feet or (2) seventy-five percent of the area of a lot or combination of lots (a) in existence as of June 1, 2001 and (b) held in common ownership where it is proposed to incorporate any portion of such lot or lots within the Development Parcel. A Development Parcel within the PUD-KS may contain noncontiguous lots elsewhere in the PUD-KS district or within a contiguous PUD district. There shall be no specified minimum lot size for lots located within a Development Parcel.

However, where circumstances related to the transfer of property from the federal government to other governmental or private entities (for the purpose of private development on a portion or all of the land in the control of the federal government) limit the feasibility of creating a Development Parcel meeting the size requirements of this Section 13.13.2, the Planning Board may in its discretion approve a PUD application having a smaller Development Parcel size.

13.13.3 Residential Density. ~~For the purpose of computing residential density, the minimum lot size for each dwelling unit shall be three hundred (300) square feet. Residential density shall be computed based on the entire development parcel.~~ There shall be no required minimum Lot Area Per Dwelling Unit in the PUD-KS District.

13.13.4 Maximum Building Height.

13.13.4.1 The maximum height permitted in the district shall be ~~sixty-five (65)~~ two hundred fifty (250) feet except as it may be further limited or permitted below. The permitted heights are further illustrated on the Building Height Regulation Map for the PUD-KS, Map 13.11.

(1) Reduced Building Height to ~~One Hundred Forty~~ Two Hundred Feet. The maximum height shall be reduced to ~~one~~ two hundred ~~forty~~ (~~140~~200) feet in portions of the PUD-KS District within ~~one hundred fifty~~ two hundred twenty-five (~~150~~225) feet of the centerline of Binney Street.

(2) Reduced Building Height to Eighty-Five Feet. The maximum height shall be further reduced to eighty-five (85) feet in the portion of the PUD-KS District bounded by the centerline of Binney Street, the centerline of Third Street, a line four hundred twenty-five (425) feet north of and parallel to the centerline of Broadway, and a line seventy-five (75) feet west of and parallel to the centerline of Fifth Street, including the extension of such lines to their intersection with other reference lines identified in this Paragraph.

(3) Increased Building Height to Three Hundred Fifty Feet and up to ~~or~~ Five Hundred Feet. In the portion of the district **not described in Paragraphs (1) and (2) above, the Planning Board may approve a Final Development Plan containing building heights exceeding two hundred fifty (250) feet but not to exceed five hundred (500) feet, subject to the following limitations that may be waived by the Planning Board only upon a finding that any such waiver(s) will result in a superior development that better conforms to the objectives of this Section 13.10, the standards in Section 13.13.42, and applicable city plans and guidelines. Further, the Planning Board must find that any buildings above three hundred and fifty (350) feet are of a distinctive and particularly high quality architectural design.** ~~within a distance of four hundred twenty-five (425) feet from the centerline of Broadway, the Planning Board may approve one building that is of exceptional architectural quality to exceed two hundred fifty (250) feet but not to exceed five hundred (500) feet and other buildings to exceed two hundred fifty (250) feet but not to exceed three hundred fifty (350) feet, provided that no~~

~~more than twenty percent (20%) of the area of that portion of the district may be covered by buildings or parts of buildings exceeding two hundred fifty (250) feet in height.~~

a. No more than ten percent (10%) of the land area of the Development Parcel may be covered by portions of buildings in excess of two hundred fifty (250) feet in height.

b. No individual story of a building located above two hundred fifty (250) feet in height shall have a gross floor area exceeding fifteen thousand (15,000) square feet.

c. **No more than one building shall be allowed to exceed three hundred fifty (350) feet in height.** ~~In reviewing a Development Proposal or Final Development Plan including a building that exceeds three hundred fifty (350) feet in height, the Planning Board shall determine whether the taller building supports the objectives for Kendall Square set forth in the K2 Plan, Kendall Square Design Guidelines and PUD-KS Urban Design Framework.~~

~~Additional Building Height to Eighty-Five Feet. The maximum height shall be eighty-five (85) feet in the areas described below:~~

~~(a) An area bounded by the centerlines of Fifth Street, Monroe Street, Third Street and Potter Street.~~

~~(b) An area bounded by the centerline of Potter Street and its northwesterly extension; then the centerline of the former Sixth Street (the MXD district boundary line); then a line northeasterly of, parallel to and two hundred (200) feet distant from the northeasterly sideline of Broadway; then a line northwesterly of, parallel to, and three hundred (300) feet distant from the northwesterly sideline of Third Street, to the point of beginning.~~

~~(2) Additional Building Height to One Hundred and Twenty Feet. The maximum height shall be one hundred and twenty (120) feet in that area bounded by areas described in Paragraph (1) above; then the centerline of Third Street; then a line northeasterly of, parallel to, and one hundred (100) distant from the northeasterly sideline of Broadway; then the centerline of the former Sixth Street (the MXD district boundary line) to the point of beginning.~~

~~(3) Additional Building Height to One Hundred and Eighty Feet with Portions to Two Hundred and Fifty Feet. The maximum height shall be one hundred and eighty (180) feet in that area bounded by the area described in Paragraph (2) above; then the centerline of Third Street; then the centerline of Broadway; and then the centerline of the former Sixth Street (the MXD district boundary line) to the point of beginning. However, portions of buildings may rise above one hundred and eighty (180) feet to no more than two hundred and fifty (250) feet provided the area of all floorplates of portions of buildings above 180 feet do not exceed ten percent of the total area of the Development Parcel.~~

~~(4) Portions of Buildings limited to Forty-five Feet. Notwithstanding the provisions of Paragraphs (1) – (3) above, any portion of a building that is within fifty (50) feet of an existing or proposed Public Open Space or single intervening street abutting that open space may exceed 45 feet only if for each floor above 45 feet, that floor is set back an additional 10 feet from the façade of the floor below, until the maximum height is attained, or until a 20 foot setback from the façade at 45 feet is attained. Alternately, a set back of 20 feet from the~~

~~façade of the building at a height of 45 feet shall be permitted, and the remaining portions of the building allowed to achieve the maximum height permitted in Paragraphs (1) – (3) above or any variation between the two provisions.~~

~~**13.13.42** The Planning Board shall not approve any Final Development Plan in the PUD-KS District not in conformance with the regulations of Section 13.13.4 above. In the portion of the PUD-KS that allows buildings to 200 feet or more, the Planning Board may approve a building up to 250 feet if other buildings or portions of buildings in that portion of the Development Parcel are no higher than one hundred and fifty (150) feet.~~

13.13.43.2 In evaluating a ~~development proposal~~Development Proposal and/or a Site Massing Plan for a Master Plan Area providing building height in excess of ~~one hundred and twenty (120)~~ one hundred twenty-five (125) feet, the Planning Board shall give consideration to evidence presented on the following:

(a) that increased height is located on the site and designed in such a way to reduce the impact of shadows, excessive wind, and obstruction of light and views, with specific consideration given to residential buildings and public spaces~~ will not cast shadows or alter air currents in ways that will unreasonably limit the amount of light and air reaching other buildings in the vicinity to a significantly greater extent than if the building height did not exceed one hundred and twenty (120) feet~~;

(b) that increased height would mitigate detrimental environmental impacts such as excessive ground coverage, diminution of open space, and monotonous development;

(c) that increased height would~~ not adversely affect and would result in increased sensitivity to the visual and physical characteristics of the particular location~~ be sensitively managed to provide an appropriate scale at interfaces with adjoining lower scale uses, such as ~~through more harmonious relationships to the terrain and to the~~ proposed and existing buildings and open spaces in the vicinity that have functional or visual relationships to the proposed building;

~~that increased height would result from actions taken to lessen the impact of traffic and parking on the surrounding area; and~~

(d) that the orientation and location of the proposed structure would not otherwise diminish the health and safety of the area around the development parcel.

~~The~~(d~~e~~) if applicable, the additional height permits accommodation of GFA transferred from the Eastern Cambridge Development Rights Transfer Donating District.

~~Notwithstanding the provisions of Paragraphs (a) through (d~~e~~) above, t~~The Planning Board also shall consider ~~give consideration to~~ the consistency of any Final Development Plan in achieving the design and site planning goals, as well as the measures set out to achieve these goals, as set forth in the **K2 Plan, the** Kendall Square Design Guidelines **and PUD-KS Urban Design Framework**.

13.13.5 Other Dimensional Requirements. There shall be no minimum width for the D~~d~~evelopment P~~p~~arcel and no minimum width for lots located within the D~~d~~evelopment P~~p~~arcel. There shall be no minimum required front, rear and side yard requirements for a D~~d~~evelopment P~~p~~arcel or for lots located within a D~~d~~evelopment P~~p~~arcel. The Planning Board shall approve all such lot sizes and building setbacks.

13.14 *Open Space*. The following Open Space requirements shall be met on each Development Parcel.

(1) For that portion of a Development Parcel consisting of lots described in Section 13.13.1.1, Paragraph (1) above, any combination of Public Open Space, Green Area Open Space or Permeable Open Space, as defined in this Ordinance, shall be provided on the Development Parcel and shall in the aggregate equal at least twenty (20) percent of the area of that portion of the Development Parcel.

(2) For that portion of a Development Parcel or Master Plan Area consisting of lots described in Section 13.13.1.1, Paragraph (2) above, ~~any combination of~~ Public Open Space~~, Green Area Open Space or Permeable Open Space~~, as defined in this Ordinance, shall be provided on the Development Parcel and shall in the aggregate equal at least ~~Forty-two (42)~~ twenty-five (25) percent of the area of that portion of the Development Parcel, subject to the further ~~limitations~~ standards set forth in Section 13.14.1 below. For the purpose of this Section 13.10, Open Space on a Government Owned Lot in accordance with Section 13.112 shall be considered Public Open Space as defined in this Zoning Ordinance provided that it is intended for the use and enjoyment of the general public**; however, Open Space on a Government Owned Lot may not fulfill more than twenty percent (20%) of the public open space requirement set forth in this Section**.

Owners of adjacent Development Parcels may collectively provide the required open space ~~by easement, deed restriction, covenant, or comparable legal instrument enforceable by the City of Cambridge or other public entity~~ provided the Planning Board finds that the owners of each Development Parcel have provided written evidence of an agreement that the total amount of open space required for both Development Parcels is provided and that the Open Space Plans for each Development Parcel meet the standards for approval. In that event, the Planning Board shall record in the Special Permits for each PUD the amount of open space required on each Development Parcel ~~each Development Parcel shall, for purposes of this Section 13.10 be deemed to include that portion of such open space as the owners shall allocate to it in chosen legal instrument~~.

All required open space shall be generally accessible to the public for reasonable periods throughout the day for the purposes for which the open space is designed and approved by the Planning Board, which may include but not be limited to walking, bicycling, active and passive recreation. The Planning Board must approve any proposal to significantly limit public access to the required open space.

13.14.1 **Additional Standards for** Required Public Open Space. **For Public Open Space required in Section 13.14, Paragraph (2) above, the Planning Board shall approve a Final Development Plan only if it finds that the following standards are met:**

a. The open space includes at least one large civic space that is sited, designed and programmed to be a gathering place for all members of the community, including residents, workers, visitors, families, children, young adults, seniors and persons with disabilities. Such civic space shall be under the control of the City of Cambridge through fee simple conveyance, easement, or other legal mechanism acceptable to the City.

b. All Public Open Space, including the large civic space, shall be arranged into an integrated system that provides public connections to streets, other public spaces

surrounding the Development Parcel, and Active Uses (as defined in Subsection 13.111.1 below) at the ground floors of buildings where they abut open space.

c. **Public Open Space fulfilling the requirements of this Section must serve an explicit public function, which may include active or passive recreation, pedestrian or bicycle connections, enjoyment of natural environments, spillover activity from publicly accessible ground floor uses, public performances or other programming opportunities. Public Open Space shall not fulfill these requirements if it is found only to provide landscaped yards for buildings or access to building entrances that are not intended to be used by the general public.**

~~For that open space required in Section 13.14, Paragraph (2) above, the required open space shall consist in part of a contiguous 7.5 acre Public Open Space to be located in the northwest quadrant of the PUD-KS district as further described and located in the Eastern Cambridge Plan. The Public Open Space shall be under the control of the City of Cambridge through fee simple conveyance, easement, or other legal mechanism acceptable to the City. In the event that the City of Cambridge does not accept the facility, the PUD permittee shall maintain the park for the use of the general public as originally designed and approved by the Planning Board in the Special Permit. The Public Open Space shall be designed and constructed by the permittee according to the conditions of the PUD special Permit and when conveyed to the City shall be environmentally and otherwise suitable for the recreational uses for which it is designed.~~

~~However, where circumstances related to the transfer of property from the federal government to other governmental or private entities (for the purpose of private development on a portion or all of the land in the control of the federal government) limit the feasibility of creation of a 7.5 acre park, the Planning Board may at its discretion approve a Final Development Plan providing a contiguous Public Open Space of less than 7.5 acres. In approving such a Final Development Plan the Planning Board shall find that a smaller facility continues to meet the objectives of the Eastern Cambridge Plan and the Eastern Cambridge Design Guidelines.~~

~~**13.14.2**~~ The Planning Board shall encourage development that is located adjacent to a Public Open Space to be physically and functionally integrated with the open space by means of building orientation, active frontages, location of building entrances, pedestrian linkages between major activity centers, and similar techniques in accordance with the objectives set forth in the K2 Plan and the Kendall Square Design Guidelines **and PUD-KS Urban Design Framework**.

13.15 *Perimeter and transition*. Any part of the perimeter of a PUD-KS which fronts on an existing or future street or public open space should be so designed as to complement and harmonize with adjacent land uses with respect to scale, density, setback, bulk, height, landscaping, and screening. Developments in the PUD-KS district should provide integrated pedestrian circulation systems, with particularly strong linkages to the Broad Canal and the riverfront, Kendall Square, and the Eastern Cambridge neighborhoods.

13.17 *Parking and Loading Requirements*. Development in the PUD-KS District shall conform to the off street Parking and Loading Requirements set forth in Article 6.000, and in the Schedule of Parking and Loading Requirements applicable to the Residence C-3, Office 3, Business B and Industry B districts, except as modified by this Section 13.17.

13.17.1 With regard to uses contained within new commercial buildings, provided that the requirements of Section 6.23 of the Ordinance are met, the parking requirements of this Section 13.17 may be satisfied (a) anywhere in the PUD-KS District or, if located outside of

the PUD-KS District, within 2,000 feet of the use being served, notwithstanding anything to the contrary contained in Article 6.000; and (b) in total or in part by a lease agreement between the Developer and the City, other public entity or private owner or consortium for use of parking spaces in the public or pooled private parking facilities within said area.

13.17.2 All parking provided within an approved PUD shall be considered collectively accessory to all approved uses within the PUD. Notwithstanding anything to the contrary in Article 6.000, this Ordinance shall not restrict the management and assignment of parking spaces in a way that will most efficiently utilize the existing and proposed parking spaces to serve all approved uses. As an exception to these rules, all parking spaces (whether existing or proposed) that are accessory to an Other Government Facility use as listed in Section 4.33, paragraph (g) of the Table of Use Regulations shall be distinctly identified and shall not be accessory to any other uses.

13.17.3 Minimum Parking. In approving a Final Development Plan for a Development Parcel, the Planning Board may waive any minimum parking requirements applicable in the zoning district, with the exception that parking for residential uses shall not be less than 0.5 parking spaces per dwelling unit. The Planning Board may approve arrangements for shared parking of such residential parking spaces with commercial spaces. The Planning Board shall specify a minimum parking requirement for a PUD based on review and analysis of Transportation Impact Studies and other relevant information on parking demand provided in application documents, including the Shared Parking Study as required below and with the guidance of City agencies.

13.17.4 Maximum Parking. Maximum allowed parking for a PUD shall be limited by applying the rates set forth below to each use within the PUD and taking the summation of the result for all uses. For any use not listed below, the maximum parking ratio set forth in Article 6.000 shall apply. Exceeding the maximum allowed parking shall require a waiver of maximum parking ~~required~~ under the general provisions of Article 6.000.

~~a. Maximum of 0.9 spaces per 1,000 square feet of GFA for office uses, excluding technical office (Section 4.34(a-e)).~~

a. Maximum of 0.8 spaces per 1,000 square feet of GFA for office uses, including laboratory use and technical office uses (Section 4.34~~(f)~~).

b. Maximum of 0.75 spaces per residential dwelling unit (Section 4.31(d-g)).

c. Maximum of 0.5 spaces per 1,000 square feet of retail (Sections 4.35 and 4.36).

d. Maximum of 1 space per 4 sleeping rooms for hotel use (Section 4.31(i)(2)).

13.17.5 Shared Parking Study. A Development Proposal for development in the PUD-KS District shall include an analysis of anticipated parking demand for all uses in the development throughout the course of a typical day and week. This analysis may identify opportunities for reducing the total amount of parking required to serve all uses through the sharing of parking spaces by multiple uses. Based on this analysis, the Planning Board may approve a reduced minimum or maximum parking requirement upon finding that the approved amount of parking will be sufficient to serve all permitted uses.

13.17.6 Interim Use of Surface Parking. On an interim basis, in anticipation of later construction of structured parking sufficient to meet all parking requirements, on grade open parking shall be allowed in a Development Parcel subject to the following conditions:

(1) The future parking structure will be constructed within the Development Parcel but it may be located either on or off of the lot which it will serve;

(2) Construction of the replacement parking structure will commence within four years of the date of certificate of occupancy for the building initially served by on grade parking;

(3) The future parking structure will contain sufficient spaces for users of the building initially served by on grade open parking so as to meet the parking requirements for such building; and

(4) Binding commitments exist to establish, to the reasonable satisfaction of the Planning Board, that requirements (1) through (3) above shall be satisfied. Such commitments shall be made by negotiated lease agreement, deed restriction, covenant, or comparable legal instrument.

~~**13.17.1** Off street parking facilities shall be provided as follows:~~

~~(1) Residence: 1 space per unit minimum, 1.5 spaces per unit maximum.~~
~~Public Assembly: Number of seats requiring one space: 15.~~

~~(3) Institutional: 1 space per 1,800 square feet.~~

~~(4) Retail (except as noted in Section 13.17.2 below) and Office:~~

~~Ground floor: 1,125 square feet~~

~~Other level: 1,800 square feet~~

13.17.2~~7~~ Ground Floor Retail and Customer Service Uses. Retail and customer service uses fronting on and having a public entrance onto a public street or a public open space, located at the first floor level of a multistory building, and not exceeding 10,000 square feet for each separately leased establishment shall not be required to provide any accessory parking. Where parking is provided it shall be subject to the other provisions of this Section 13.17~~.1 above~~.

13.17.8 Loading. The Planning Board, in its approval of a Final Development Plan, may waive any requirements for the amount, location and design of loading facilities within a Development Parcel, and may permit loading facilities to be shared across various uses and lots within the PUD-KS District.

13.18 ~~Traffic~~ **Transportation** Mitigation Measures. ~~In reviewing a development proposal Development Proposal under the provisions of this Section 13.7010 and Section 19.20, t~~**T**he Planning Board shall determine that the proponent has demonstrated, at the time of Final Development Plan approval, a commitment to **implementing** a Transportation Demand Management **and Mitigation** Program consistent with the reduce**d** parking mandated in this PUD **zoning and the capacity limitations of the transportation network that serves the Kendall Square area, including roadways and public transportation systems**. The measures to be taken in this program must address:

(1) The amount of parking provided,

(2) The scale of development~~, and~~ the mix of uses proposed, and **development phasing,**

(3) The ~~assumptions employed with regard to the~~ proportion ~~of automobile use~~ **trips by each mode** for those traveling to the site~~.~~**;**

(4) The limitations on roadway capacity to accommodate new vehicle trips, and

(5) The impacts of increased demand on public transportation services in the Kendall Square area and measures to offset or mitigate such impacts.

~~For examples of such Measures, t~~**T**he Planning Board shall refer to the ~~Eastern Cambridge Plan~~**Kendall Square Central Square (K2C2) Planning Study, the Massachusetts Department of Transportation Kendall Square Mobility Task Force study**, Article 18.000, and the requirements of Section 19.20 in establishing Transportation Demand Management **and Mitigation** measures applicable to any approved PUD. **In approving a Final Development Plan, the Planning Board may require measures to be linked to milestones, thresholds or performance standards in order to connect the outcomes of the Transportation Demand Management and Mitigation Program to the scale and pace of development within the PUD.**

13.19 *Relationship to ~~MBTA Urban Ring~~ Future Transportation Plans~~ning Project~~*. In all PUD application documents, the applicant shall indicate how the proposed PUD development relates physically to future transportation options intended to connect existing radial transit lines (subway, commuter rail, and bus), as identified in the K2 Plan, including the implementation of bus rapid transit (BRT) service~~ the most current plans developed by the MBTA for implementation of the Urban Ring transportation project~~.

13.110 Residential Uses Abutting Binney Street. Where any Development Proposal locates residential dwellings along Binney Street, the Planning Board shall, in approving a Final Development Plan containing such residential units, be satisfied that the negative impacts of truck and other heavy vehicular traffic on Binney Street will be adequately mitigated for the residents of the proposed dwelling units. Such mitigation shall be achieved through the location of the buildings within the Development Parcel and the distribution of activities within those buildings; the provision of setbacks, landscaping and similar kinds of buffers; the inclusion of non-residential uses at the ground floor; the employment of construction techniques to minimize the transmission of sound and vibrations; and/or through the employment of any other appropriate measures.

~~**13.111** Other Housing Provisions. New housing shall include a range of dwelling unit types and sizes. At a minimum, five percent (5%) of the residential Gross Floor Area in a Final Development Plan shall be devoted to dwelling units with three bedrooms or more.~~

13.111 Special Requirements, Conditions and Standards Applicable to Certain Development Authorized by the Planning Board in Kendall Square. The Planning Board shall approve a Final Development Plan in the PUD-KS District only after finding that in addition to all other applicable requirements the following ~~requirements~~ standards have been met. The Planning Board shall, in addition, include conditions in the approval of a Final Development Plan that will ensure ongoing compliance with these requirements.

13.111.1 Required Active Uses. Final Development Plans shall enhance the public pedestrian usage of the sidewalks and create a sense of neighborhood continuity by providing an interesting, lively and active presence at street level. Accordingly, for those buildings in the PUD immediately fronting a public street, public park, or public plaza, with the exception of buildings on a Government Owned Lot that are exempt from GFA per the provisions of Section 13.112, the

first floors of these buildings shall generally be planned, designed, constructed and used for Active Uses as ~~defined~~ required below.

a. Definition of Active Uses. For purposes of this Section, "Active Uses" shall mean retail business and consumer service establishments ~~listed~~ permitted in Section 13.12.4; institutional uses that are generally open to the public, **such as museums and exhibition spaces; child care, education or recreation uses serving families with children; and other uses which are generally open to the public and which the Planning Board determines meet the goals of this Section**.

b. For the purposes of this Section, Active Uses shall specifically exclude lobbies or other spaces that serve an accessory function to upper-story office, laboratory or residential uses, **and shall specifically exclude banks and similar consumer financial establishments. Furthermore, no individual bank or similar consumer financial establishment may occupy more than twenty five (25) feet of horizontal linear frontage on the ground floor of a building.**

c. At a minimum, a total of at least seventy-five percent (75%) of the frontage on the ground floors of such buildings facing Broadway ~~and~~ or Third Street shall be devoted to spaces containing Active Uses. The Planning Board shall review an Active Use Plan as a component of a Development Proposal and a Final Development Plan describing how the proposal meets the requirements and intent of this Section.

d. Active Uses shall have one or more entrance(s) from the sidewalk or plaza separate from the principal entrance of the building serving non-retail uses. Adequate space shall be provided along sidewalks adjoining active uses for outdoor activity (e.g. café seating) associated with those uses. Outdoor courtyards, delineated gathering space, or sitting areas are encouraged to complement active ground floor spaces.

e. **The Active Uses in a Final Development Plan shall include at least one establishment providing a broad array of general merchandise as a convenience to residents of the surrounding neighborhoods, such as a grocery store, public market, pharmacy, general store or department store.**

f. **At least twenty-five percent (25%) of the floor area devoted to Active Uses in a Final Development Plan, excluding those uses described in paragraph (e) above, shall be devoted to independent retail operators each occupying no more than two thousand five hundred (2,500) square feet of floor area. Such space may be provided as larger public atrium spaces containing smaller vendor stalls or kiosks.**

g. Notwithstanding the above, the Planning Board, in approving a Final Development Plan, may grant minor modifications to the requirements set forth in this Section 13.111.1 upon finding that the proposed ~~Active Use~~ Ground Floors Plan meets the objectives of the District and the K2 Plan.

h. Prior to submitting an application for a special permit in the PUD-KS District, the applicant shall engage the services of a consultant or other party with retail expertise to advise the applicant in connection with retail and other Active Uses to be included in the applicable Development Parcel. The recommendations of that consultant shall be included in the applicable special permit application.

13.111.2 Rooftop Mechanical Equipment Noise Mitigation. Sound emanating from rooftop mechanical equipment on all new or substantially altered structures in an approved Final Development Plan shall be minimized by the adoption of best available and feasible practices regarding the location and sizing of equipment, the selection of equipment and sound attenuation measures.

At a minimum, any noise or vibration emanating from new commercial or substantially altered commercial buildings shall not be normally perceptible at ground level without instruments at a distance of one hundred (100) feet from the source lot line and shall comply with the provisions of the City of Cambridge Noise Ordinance applicable to Commercial Areas (as such term is defined in the Noise Ordinance).

In order to enforce these requirements, the applicant shall provide, in addition to a Noise Mitigation narrative required as part of Article 19.000 review, acoustical reports prepared by a professional acoustical engineer as described below:

(a) Prior to and as a condition of the issuance of the first certificate of occupancy for a new or substantially altered commercial building, an acoustical report, including field measurements, demonstrating compliance of such building with all applicable noise requirements; and

(b) Prior to obtaining any building permit to add any new equipment having a capacity greater than five (5) horsepower to the rooftop, a narrative report demonstrating that there will be continued compliance with all applicable noise requirements after such addition, and upon completion of such addition and as a condition thereof, an acoustical report, including field measurements, demonstrating such compliance.

13.111.3 Innovation Space. A Development Proposal containing at least two hundred thousand (200,000) square feet of new Office Uses, specifically excluding any office space designated as Other Government Facility on a Government Owned Lot pursuant to Section 13.112, shall include a plan for Innovation Office Space meeting the requirements of Section 13.111.3.1.

13.111.3.1 Required Space. For a Development Proposal containing new Office Uses (specifically excluding any office space designated as an Other Government Facility on a Government Owned Lot pursuant to Section 13.112), Innovation Office Space within the PUD-KS District must occupy GFA equal to, or in excess of, the amount of GFA that is five percent (5%) of the new GFA approved in the Final Development Plan for Office Uses. Existing GFA within the PUD-KS District may be used to meet this requirement. Where at least 40,000 square feet of Innovation Office Space is required, Innovation Office Space may be distributed in separate buildings, provided, however, that each separate "unit" of Innovation Office Space, contains at least 20,000 square feet. If less than 40,000 square feet of Innovation Office Space is required to be contained in the PUD-KS District, the Innovation Office Space must be contained in a single building.

Developers of properties within the PUD-KS District may collaborate with property owners in adjacent zoning districts in the Kendall Square area to develop joint Innovation Office Space. In such a case, the total square footage of Joint Innovation Office Space must be large enough to satisfy the sum of the requirements, if any, for such participating Developers and zoning districts.

13.111.3.2 Characteristics. For the purposes of this Section 13.111.3.2, Innovation Office Space shall have the following characteristics:

(a) Durations of lease agreements (or other similar occupancy agreements) with individual business entities shall be for periods of approximately one (1) month.

(b) No single business entity may occupy more than 2,000 square feet or ten percent (10%) of the entire Innovation Office Space required to be provided in the PUD-KS District, whichever is greater. The average size of separately contracted private suites may not exceed 200 square feet of GFA.

(c) Innovation Office Space shall include shared resources (i.e., co-working areas, conference space, office equipment, supplies and kitchens) available to all tenants and must occupy at least fifty percent (50%) of the Innovation Office Space. Individual entities occupying Innovation Office Space may include small business incubators and accelerators, small research laboratories, office space for investors and entrepreneurs, facilities for teaching and for theoretical, basic and applied research, product development and testing prototype fabrication or production of experimental products. Developers within the PUD-KS District obligated to provide Innovation Office Space, must provide an annual report to the City's Community Development Department showing the location and size of all Innovation Office Space, the number of separately leased spaces, information regarding the number of tenants, size of company, and area of endeavor.

13.111.3.3 GFA deductions for Innovation Office Space. For a Development Proposal required to provide Innovation Office Space, 50% of the required GFA devoted to Innovation Office Space shall not be counted toward the FAR requirements of 13.13.1 and the non-residential GFA limitations as set forth in Section 13.13.1.1.

13.111.3.4 Variations. In approving a Final Development Plan or a Minor Amendment to a Final Development Plan, the Planning Board may allow variations in the specific standards and characteristics set forth in Sections 13.111.3.1 and 13.111.3.2 above, if the Planning Board finds that the Innovation Office Space, as proposed, will be consistent with the purposes of these standards and characteristics.

13.111.4 Sustainability. New buildings constructed within the PUD-KS District shall comply with the provisions of Section 22.20 of the Ordinance. For those construction projects subject to Section 22.23, LEED certification at the Gold level or better is required. In connection with the submission requirements of Section 22.24.2.a., the Developer of such buildings shall submit a Statement of Energy Design Intent produced through the EnergyStar Target Finder tool, or comparable method. New buildings in the PUD-KS District must incorporate an integrated design approach and incorporate the best practices for meeting sustainability in the following five (5) areas:

(a) Energy and Emissions; Steam. Each new building must conserve building energy and, to the extent applicable, reduce carbon/GHG emissions. The Developer, with each Development within the PUD-KS District, must evaluate the potential for on-site energy generation or the construction of co-generation facilities within the PUD-KS District. A Development Proposal for a commercial building shall include a study, prepared by the Developer, considering the feasibility of connecting the building(s) identified in the Development Proposal to the existing district steam system.

(b) Urban Site and Landscaping; Water Management. The Developer, for each new building, must explore opportunities for (i) potable water use reductions, (ii) storm water management using open spaces, (iii) the incorporation of indigenous vegetation, and, (iv) stormwater for irrigation purposes. At a minimum, all new buildings within the PUD-KS District must meet the Department of Public Works' standards for water quality

management and the retention/detention of the difference between the 2-year 24-hour pre-construction runoff hydrograph and the post-construction 25-year 24-hour runoff hydrograph. The design of buildings and outdoor spaces must also provide for vegetation such as canopy trees, green walls and other measures to reduce urban heat gain.

(c) Cool Roofs. All new buildings approved in the District after January 1, 2014, must employ Functional Green Roofs (as such term is defined in Article 22.000 of this Zoning Ordinance), high-albedo "white" roofs or a functionally equivalent roofing system.

(d) Monitoring. All new buildings approved in the PUD-KS District shall be required to conform to the requirements of the Cambridge Building Energy Use Disclosure Ordinance, Chapter 8.67 of the Municipal Code.

(e) In connection with the approval of a Final Development Plan or in connection with the granting of a Special Permit pursuant to Article 19 of the Ordinance, the Planning Board may grant dimensional and other zoning relief in order to permit the construction of a co-generation facility or other energy systems that allow developments to develop shared solutions to minimize energy usage.

(f) A Development Proposal shall include a Sustainability Narrative describing how the project will meet the requirements set forth in this Section, and shall additionally describe the consistency of the proposed development with other sustainability goals that may be established by the City, such as mitigating urban heat island effect, promoting district energy systems, and preparedness for impacts of climate change.

13.111.5 Contribution to Kendall Square Fund. Prior to issuance of a Certificate of Occupancy for any building authorized by a PUD special permit in the PUD-KS District and containing non-residential uses not exempt from GFA pursuant to Section 13.13.1, the permittee shall be required to contribute to a Kendall Square Fund established by the City Manager. The contribution (referred to as a "Fund Contribution Payment") shall be calculated by multiplying ten dollars ($10.00) by the number of square feet of new GFA ~~greater than is permitted in the base districts~~ for all non-residential uses not exempt from GFA pursuant to the provisions of Section 13.13.1. The City shall use the Fund Contribution Payment pursuant to this Section 13.111.5.

(a) Open Space and Transit Improvements. 67% of any Fund Contribution Payments shall be allocated for the establishment and betterment of publicly beneficial open spaces located in the PUD-KS District and adjoining neighborhoods, and transportation improvements and services to benefit the Kendall Square neighborhood and adjacent neighborhoods not already required by the City of Cambridge Parking and Traffic Demand Management (PTDM) Ordinance. The open space and transit improvement funds shall be allocated at the direction of a committee appointed by the City Manager, which committee shall contain representatives from Kendall Square and adjacent neighborhoods.

(b) Workforce Development and Training. Thirty-three percent (33%) of any Fund Contribution Payment shall be allocated separately for workforce development serving residents throughout the City of Cambridge. The workforce development and training funds shall be allocated at the direction of a committee appointed by the City Manager.

13.112 Special Requirements Related to Government Use on Government Owned Lots. Where a Development Parcel or Master Plan Area in the PUD-KS district includes a Government Owned Lot as it is defined below, the special provisions set forth in this Section 13.112 shall apply notwithstanding any other regulations to the contrary set forth in this Ordinance.

(a) For the purpose of this Section 13.112, a Government Owned Lot shall mean a lot owned by the federal government that may be developed in conjunction with a transfer of land to a private entity, where such transferred land abuts the Government Owned Lot, and where, for the convenience of the government, the Government Owned Lot is included as part of a Development Parcel or Master Plan Area. If so included, such Government Owned Lot shall be clearly identified in a Development Proposal and Final Development Plan.

(b) Uses on a Government Owned Lot categorized as Other Government Facility in Section 4.33, item (g) in the Table of Use Regulations in this Zoning Ordinance, if included within a Final Development Plan, shall be exempt from the requirements set forth in this Section 13.112 and elsewhere in the Ordinance, including but not limited to Floor Area Ratio (FAR) limitations, limitations on non-residential use allowed in a Final Development Plan, Active Use requirements, Innovation Space requirements, Community Fund contributions and Incentive Zoning contributions.

(c) Notwithstanding the above, a Government Owned Lot shall be included in calculating the area of a Development Parcel for all purposes, including the calculation of FAR limitations and Open Space requirements. Public Open Space on a Government Owned Lot may be counted toward meeting the open space requirements ~~of~~ as explicitly provided in Section 13.14, regardless of any temporary limitations on access or use that may be imposed by the controlling government entity.

(d) If a Special Permit has been granted authorizing development on a Development Parcel or Master Plan Area containing a Government Owned Lot in accordance with a Final Development Plan, and the controlling government entity later separates the Government Owned Lot from the remainder of the Development Parcel or Master Plan Area, then no future modification to development on the Government Owned Lot shall affect the development authorized in the approved Final Development Plan on the remainder of the Development Parcel or Master Plan Area, and such development shall be allowed to proceed in accordance with the Final Development Plan.

(e) If a Special Permit has been granted authorizing development on a Development Parcel or Master Plan Area containing a Government Owned Lot in accordance with a Final Development Plan, and the ownership of the Government Owned Lot is later transferred such that it no longer meets the definition of a Government Owned Lot as set forth in Paragraph (a) above, then the provisions of this Subsection 13.112 shall no longer apply and any modifications to the Final Development Plan shall be required to conform to the requirements and procedures set forth in Article 12.000 and this Section 13.10 along with other applicable provisions of the Zoning Ordinance.

Lopez, Donna ATTACHMENT A

From: Richard Goldberg <rgoldberg170@gmail.com>
Sent: Tuesday, December 01, 2015 3:45 PM
To: City Council; Lopez, Donna; keepCambridgeLivable@gmail.com
Subject: Volpe Upzoning

Re Volpe site Upzoning:

Before up-zoning the Volpe site, wouldn't it make sense to know why you're doing it and what the costs will be?

As a member of a nearby neighborhood, I am concerned about more construction, more noise, and yet more office and commercial space bringing yet more transient brain workers into Kendall Square and spilling over into Central Square, the heart of Cambridge and the neighborhood center for existing residents, many low-income, of my neighborhood, the Port.

I know that the City is eager to keep Volpe here, and the thought of giving Volpe a new building and then getting without cost additional park, residential, office, and commercial space is a deal too good to pass up. Oh, yes. And we'll get needed affordable housing in addition to more luxury/market units. Prove me wrong that the addition of a few affordable units and many luxury/market units will not put additional pressure on the few affordable units left in the neighbhoods abutting mega-development.

There is of course a price to pay for the few community benefits embedded in developer giveways. The proposed building and those near it will have to be very very tall. But just how tall? Before giving the development community the green light, shouldn't we all know what the tradeoffs are? I personally want to maximize affordable housing, keep everything no higher than the existing buildings in the neighborhood, have as much open space as was previously promised. I might be dreaming, but couldn't this site also be architecturally significant, with a plaza or fountain, or open space design that would signal that here we are in a city and not an office park? Before you tell me that this just isn't possible I want to see the numbers. Not vague approximations, but realistic projections.

Unless you have the numbers you are not making decisions based on anything more than guesswork. Giving Volpe and the developers a blank check is not operating in the best interest of the community. Hold off until you have some figures. Otherwise, we'll have yet another monumental shoebox whcih will make the Cambridge Courthouse seem to be an edifice built on a human scale.
And of course the height of one mega-tower will only serve as a precedent to the surrounding sites.

If you really want community participation in the planning of this site you'll slow down the process and make decisions based on real numbers.

Thank you.

Richard Goldberg, 170 Harvard St., Cambridge, 02139

ATTACHMENT B

C. Hines

Volpe Ordinance Committee Presentation

1. What is Volpe?
   - Named after Governor Volpe who established the Mass State Sales Tax
   - Volpe is a "unique" federal agency (in their own words)
   - Federal fee-for-service research center (consulting organization)
   - Not supported by tax dollars
   - Volpe receives no base funding or agency support to offset facility operations and maintenance costs. (unlike NASA they have no goals, but sell their services)
   - 550-member federal workforce / $400 million = approximately $730,000/employee
   - $500/sf? That's outrageous! Super Luxurious Millenium Tower in Boston is running at $550/sf
   - SBIR – Small Business Innovative Research (send work out to private sector)
   - 37% of money collected is overhead (give them $100,000 and 37,000 goes to overhead)
   - A lot of work is done by over 450 private contractors.
   - Is Volpe necessary? Not my call, but I have worked on SBIR FHWA projects as a private contractor and we did most of the work.
   - What has Volpe done for Cambridge? MBTA? ????

2. Land History
   - Volpe land was taken by eminent domain for a NASA Facility
   - NASA selected the site for the proximity to Harvard and MIT to recruit talent
   - NASA transferred its interest in the site in Kendall Square to The Department of Transportation for a transportation systems center in 1970
   - Maybe the City should have taken the land back after NASA passed

3. Possible Contamination
   - Broad Canal ran across third St and sixth St with wooden bridges to Boston Woven Hose (1 Kendall Square)
   - Water used to cool machines
   - Dizzy Canal
   - Might make the project denser

4. Government profit on eminent domain
    - Eminent domain taking for land for the public use, the government will be selling for a 400 million profit
    - In public domain and maybe a good % of it should stay there. New courthouse, school for gifted children, public park with a duck pond?

5. Big money for developers
    - Commercial $80/ft. Prudential Center get $65/ft
    - 1,700,000sf office/lab space x 80/sf = $136,000,000/year in rent
    - 140,000sf in retail space x 120/sf = 16,800,000/year in rent
    - Total office, lab, retail = 152,000,000 in rent
    - Build residential before office or residential may never be built

6. Changing Zoning (not now)
    - Changing zoning now will be giving away the store

7. Process
    - Discussion with developers on proposals should be a public process, not behind closed doors (I hear more in the Herald and Globe)
    - Volpe will select a developer that does the best for them, not necessarily East Cambridge
    - Have developers come to the city and get a variance, offers can be contingent on variance, not changing the zoning to get a new building for Volpe

8. Parking
    - Many affordable house people or non-affordable can afford $250/month??? Parking
    - East Cambridge Parking Permit

9. Green Space
    - Cutting down 30, 40+ year old growth trees does not improve Kendall Square, it takes away green space, has value
    - Value of greenspace., Boston Common, Central Park, Spent 14 billion creating Rose Kennedy Greenway

10. Is this deal good for Us?
    - Volpe gets $400,000 building
    - Developers get $152,000,000 /year in rent 5 years $764,000,000
    - Cambridge gets 250 units of affordable, say 1,000sf each at a value 350/ft = $87,500,000
    - Fees: $10/SF Kendall Square Fund= 2,972,000SF x $29,700,000
    - City total : 117,200,000

11. Fear and impotence
    - People think it's a done deal and nothing we say will affect anything
    - Some people afraid of getting sued by developers (like neighbors were in East Cambridge were back in 2000)
    - Big money talks and citizens cannot stop it. Big developers get what they want

12. Alternatives to this proposal
    - Volpe can rent somewhere and renovate building at a fraction of cost
    - Volpe can move to DC or Maryland with the rest of the FHA
    - City can look into getting property back, purchasing

13. What do citizens want?
    - ECAPS - 7 acre park?
    - Who is in favor of this besides government officials and developers?
    - Central plaza?
    - Don't want very tall buildings and dense development.
    - Can't get a good plan, leave as is. Don't have to develop every square inch right now

Conclusion:
I ask that the Ordinance Committee to not support the Volpe zoning change

ATTACHMENT C

Ordinance Committee Hearing – December 1, 2015
Gerald Bergman, 82 Elm Street

After reading the Volpe up-zoning plan I am reminded that when I see a lot of horse... I expect to find a pony. Unfortunately, I can't find the pony in the Volpe plan.

When I earned my masters in Urban planning from St. Louis University 45 years ago, I never expected that a final determination of an urban up-zoning plan would have to be made with so many uncertainties and sheer speculation, most of it to protect the potential developers.

With so much of our up zoning we are determining that private developers are the ones to bring us out of our affordable housing crisis without committing the resources that the city could commit to building the housing that we need.

I am looking for an affordable housing Marshall Plan. This demands sacrifice, it comes at a cost, and it demands political courage.

1)We could increase the residence exemption through a legislative home rule petition as Somerville has done to protect owner occupancy. This passes more of the costs onto those who can afford it.

2) We could increase the tax rate.... we are far under the levy cap. Greatly increase the amount of money we are putting toward affordable housing. Consider bond bills for affordable housing. I would think that this could be done and still protect our bond rating.

3) Replace talk with real plans to build affordable housing on land we control, and work to control land and property that is not now under our control.

To that end, some of my bottom line demands for the Volpe site are:

The Volpe site should produce no less that 35% affordable low and moderate-income housing and additional middle income housing, with an emphasis on 3 bedroom units. The Volpe site should produce no less that 65% residential and 35% other uses.

The Volpe site should produce significant contiguous and usable open space that is under city control.

The Volpe site should produce affordable retail and food opportunities

The Volpe site must produce creative designs

The Volpe site can and should entertain the necessary height and density needed to produce what I have indicated are fundamental features of the development.

ATTACHMENT D-1

ORDINANCE COMMITTEE HEARING ON REZONING PUD-KS2, 12/1/2015
Comments of Rosemary Booth, 303 Third Street #505, Cambridge MA 02142

- As the owner of a condo directly abutting the Volpe site, I object to the City's **unresponsive rezoning process**. I strongly object to its **failure to specify the allowable density (FAR) of the anticipated non-federal parcel** in its rezoning petition plan. I also object to the plan's nominal FAR of 5.4, which I believe is too dense.

REZONING PROCESS

- Since rezoning was proposed last May, I've spoken at five public hearings. My experience is that citizen views are not being taken into account; for example, the Planning Board at its 11/17 hearing heard resident comments at 9PM and discussed none of them; near 11:30PM, when all but two residents had left, and out of the blue, the Board voted to remove any limits on the number of buildings up to 500' on the site.

Is this how Cambridge does zoning?

REZONING PLAN

- I strongly object to the City's failure to define an allowable density for what will become the non-federal parcel of the Volpe site. I see even the City's nominal FAR of 5.4 as a problem, as it is nearly twice the existing allowable FAR of 3.0

- The Volpe Center sits on 14 acres of federal land. Under the GSA's "land swap" deal, the government will keep some of these acres for a new DOT building and give the rest to a competitively chosen developer after he has finished putting up the new building.

- Why is this a problem? Because *no matter how much land the government decides to keep, Cambridge is guaranteeing its winning developer the right to put up 3 million square feet of development on the leftover non-federal parcel.*

For example, here is how the density could work out:

fed. acres	non-fed FAR
2	5.4

fed. acres	non-fed FAR
4	6.6

fed. acres	non-fed FAR
5	7.3

- These examples show that, any way you slice it, the FAR of 5.4 in the rezoning petition is grossly misleading, because density on non-federal land will depend on how many acres the government and its winning developer take for the new DOT building.

- Something can be done. I urge the Ordinance Committee to seize a leadership role for the Volpe site. Set this rezoning petition aside and structure a rezoning plan for the non-federal parcel alone, so that the City has control over density. Take the time to incorporate residents' desires via the citywide Master Planning process. Take into account findings of the Housing Plan that the Council just approved, and plug in high-quality transportation, economic, and climate/sustainability data for Kendall Square, contracting for studies if need be.

- I ask you to use your power as elected officials to ensure a predictably livable site for our vital urban neighborhood.

Lopez, Donna ATTACHMENT D-2

From:	Rosemary Booth <RosemaryBooth@verizon.net>
Sent:	Monday, November 30, 2015 10:31 AM
To:	City Council
Cc:	Lopez, Donna; City Manager; CDDat344; Farooq, Iram; Peter Crawley, ECPT President; Bethany Stevens, ECPT Volpe Subcommittee Chair; Nancy Ryan, CRA President; Lee Farris, CRA Vice President; Robert C. Johns, Director, the Volpe Center; Robert Zarnetske, GSA Regional Administrator; John Hawkinson
Subject:	Objections to Refiled Petition for Rezoning of PUD-KS/Volpe Site

Dear Chairman Vice Mayor Dennis A. Benzan and Members Mayor David P. Maher, Dennis J. Carlone, Leland Cheung, Craig A. Kelley, Nadeem A. Mazen, Marc C. McGovern, E. Denise Simmons, and Timothy J. Toomey, Jr.:

As resident owners of a condo directly across from the 14-acre Volpe site we object to the lack of responsiveness and transparency in the City's PUD-KS rezoning process. We object to the City's guarantee of an amount of development for a "land swap" deal as part of this rushed and complex process. We object most strongly to the high density that will result from the proposed rezoning.

We ask that you, our elected officials, instead protect the quality of life in Cambridge by disapproving the rezoning petition. We urge you to structure rezoning to focus only on non-federal land on the Volpe site, the part under Cambridge control. This rezoning should be solidly grounded in data gathered collaboratively through the City's Master Plan process that has just begun and supplemented with information from the just-approved Housing Plan and by serious, specific studies of transportation and environmental/climate considerations for the Kendall Square area.

Rezoning process

Our experience is that the City's rezoning is not a responsive process. In the mere six months since the Planning Board filed its initial rezoning petition, we, other abutters and neighborhood groups have spoken at five public hearings. We have written multiple letters detailing concerns about density, open space, transportation, housing, building heights and some of us have met with City officials. In spite of these efforts, with the single exception of a small increase in affordable housing, none of our major concerns have been taken into account. On the contrary, the petition before us now is essentially the same as that filed last May.

Furthermore, the rezoning process has lacked transparency. At the Planning Board's hearing on November 17, for example, public comments were not opened until after 9PM. The chairman instructed speakers not to repeat anything they said at earlier hearings, but to respond only to new information—such as the Power Point economic analysis that had just been displayed for the first time, briefly, with no copies distributed. About a dozen people made public comments, each held to three minutes. When they were done, Board members did not take up any of the substantial issues that had been raised, but instead gave their individual opinions on economic analysis. Close to 1130PM, when all but two of us who had spoken were gone, one Board member proposed changing the zoning to remove the restriction of no more than one building at 500' on the Volpe site. The 500' height is highly contentious, but quickly and with little discussion the Board voted unanimously to remove any limit on the number of 500' buildings.

Is this how Cambridge does zoning? Is this a transparent process?

Rezoning plan

We strongly object to the unpredictably high density that would result if the proposed rezoning is adopted. We also object to the unacceptably high nominal density specified in the rezoning proposal, a floor area ratio (FAR) of 5.4.

To begin with, we are outraged that Cambridge has guaranteed a developer (to be selected by the government) 3 million square feet of development on the Volpe site—*without* knowing the size of the parcel on which his development will be built.

A "land swap" between the federal government and the developer they choose is at the heart of the Volpe site deal. By the terms of the swap, the government will select a developer to erect a new Volpe building on some number of site acres, in return for which the developer will be given the rest of the 14 acres to develop.

As the rezoning proposal is written, all of the 14 acres, now federal land, is considered as one parcel for the purpose of calculating density. The size of the federal parcel versus the non-federal parcel will not be known until after Cambridge rezoning has been finalized. At that point, developers will send bids to the federal government specifying the size of the DOT building they propose to put up, and on what amount of land. The land on which the new building sits will be the federal parcel. Only after the government reviews all the bids and chooses the winning one will we know the size of this federal parcel and the size of what's left, which will be the non-federal parcel. This is a problem, because *the size of the piece that the government retains will determine the actual density on the non-federal part of the site.*

For example, if the government picks a developer's proposal to site the new DOT building on 2 acres, the remaining 12 acres of non-federal land could reach a density or FAR of 5.4. This would be bad enough, since existing zoning allows a FAR of just 3.0 and we favor a limit of 4.0. However, if the government picks a developer's proposal to put the new DOT building on 4 acres, a size frequently mentioned, the FAR on the non-federal parcel grows to 6.6. If the government picks a developer's proposal that takes 5 acres, the FAR becomes an outrageously high 7.3, and so forth.

We find it unacceptable that the City not use their rezoning power to control such a critical parameter as density.

We urge you to put Cambridge back in the lead. Set aside the rezoning proposal and instead structure a rezoning plan focused on non-federal land. The rezoning should be solidly grounded in resident input via the citywide Master Plan process that has just begun, as was done for the previous ECaPS and K2 efforts. It should be grounded as well in the just-approved City Housing Plan, and informed by up-to-date information on transportation and environment/climate considerations, contracted for as separate studies if need be.

Please use your power to ensure a predictable, livable density for our vital urban community.

Sincerely,

Rosemary Booth and Jerry O'Leary

303 Third Street, #505
Cambridge, MA 02142
Rosemary Booth
303 Third Street, #505
Cambridge, MA 02142

These following comments were written prior to the Ordinance Comm meeting, so a few of my concerns may have been addressed prior to public comment.

December 1, 2015

ATTACHMENT E

To the Ordinance Committee of the City Council in reference to the Volpe petition of November 27, 2015.

I strongly urge the City council Ordinance Committee **not** to approve the Volpe petition presented by the CDC and passed by the Planning Board without revising the petition to address some specific issues.

The first issue is the upzoning that was drafted by CDD and approved by the Planning Board, which would approve a 100% build-out of the Volpe site **now**, and includes massive increases in density and vehicle trip generation and, if approved by the Ordinance Committee as proposed, would prevent any consideration of ideas that would come from the city-wide planning process. This raises the question for me of what are the real values of Community Development? Are they to develop the city with a real commitment to a sense of community? Or, are they to develop the city at the expense of the community? It feels to me as if we are rushing ahead to develop every possible parcel of land at such a speed that there is little time to consider, truly consider, the implications for a sense of community.

When the Planning Board made changes on November 17, 2015 to increase what it calls flexibility for the developer, the Board in fact allowed for the possibility of multiple 500 foot buildings instead of the original plan of one 500 foot building. If multiple 500 foot buildings are constructed, that would dramatically increase the density of the area.

Both the ECAPS and K2 plans required a public park of 7.5 acres, or 42% of the total space. The new CDD zoning would only require 3.5 acres or 25% of the land to be public open space. We deserve more open space as a city, as a community. This is one of the last large parcels of land in the city to be developed. It should include a large public park of at least 5 acres, with none of it on federal property, since, at some future time, the federal government could decide to restrict public access.

This leaves me with a few questions. What is the point of having any zoning regulations if, as it now appears, every time a developer asks for a waiver or concession, waivers are granted and it seems that the regulations are ignored.

And, I must ask, what is the point of inviting community comment if any recommendations, like the K2 plan of 2013 and the ECAP report of 2001 have little impact on what is happening in the city? This feels like a charade. Invite the public in, give us 3 minutes at the microphone, and then do what you want.

We/you have made a commitment to a city wide public planning process. Please respect the citizens and the process we have set in motion. Please do not make any final decisions on the Volpe site until the city-wide planning process can have an impact on that site.

Thank you for your time and attention.
Phyllis Bretholtz
65 Antrim Street, Cambridge, 02139

ATTACHMENT P

Ordinance Committee
December 1, 2015

Jerry O'Leary
303 Third Street Unit 505

Volpe Petition

I feel that the current Volpe petition has two types of problems, which I will call the political problems and structural problems.

The political problems are real issues that need to be and negotiated. These include: FAR, residential/commercial split, affordable housing, building heights, public open space. The numbers for these all need further discussion and analysis.

I certainly support those who are requesting more time so that these problems can be discussed and given the consideration they deserve.

Tonight I want to focus on the structural problems, things which are, to me, just plain wrong. These structural problems need to be addressed no matter how we decide to go forward.

The principal structural problem is that the current petition does not clearly separate the federal and non-federal portions of the site. Important parameters, total area and public open space on the non-federal parcel depend on the negotiation between GSA and the developer and will not be known until the developer is picked.

The zoning must be written in a way which allows for this range of uncertainty.

One uncertainty is density. The traditional intent of zoning is to control the density. By basing the FAR definition on the area of the entire parcel, the current petition guarantees a fixed amount of development (GFA) on the non-federal parcel rather than a fixed density (FAR).
A second uncertainty is the area of the public open space on the non-federal parcel, which is the only part Cambridge controls. This now depends on the amount of open space demanded by the government, over which Cambridge has no control.

These uncertainties lead to unintended consequences. With a fixed amount of development, the building density on the non-federal land can vary wildly depending on the area of the federal land. You have seen some of the numbers earlier or can find them in a letter we submitted.

As an absolute minimum, the zoning petition needs to be rewritten to break this connection. I believe the best way to do this is to make a clean separation and have the zoning based only to the non-federal portion of the site. This could be achieved with only a few minor changes to the current petition.

1. Define the petition to apply to the non-federal portion of the site. In particular, define FAR so that it is based on the area of the non-federal portion the site; and,
2. Specify the amount of non-federal public open space in the zoning.

The first result of this change would be that the amount of development (total GFA) would now depend of the size of the federal land, but the density would remain the same. If GSA wants a

larger federal site, the allowed amount of non-federal development would decrease. This would pressure the developer to negotiate for the smallest feasible site to the GSA, giving Cambridge some leverage in the development process.

A second result of this change is that the zoning would give a realistic description of what the resulting development would look like. With set of reasonable definitions, we could begin a set of productive discussion and debate would proceed more smoothly.

I feel that these changes would provide a sound structure upon which the development could move forward.

ATTACHMENT G

(1)

PEACE BE UNTO TO YOU, DECEMBER 1, 2015

I'M HASSON RASHID, AND I RESIDE AT 820 MASSACHUSETTS AVENUE, MY PUBLIC COMMENT IS AS FOLLWS:

THE REVISED VOLPE UP-ZONING PETITION FOR THE PUD-KS AREA, OR ANY OTHER AREA IN THE KENDALL SQUARE DISTRICT OF THE CITY, IS NOT PART AND PARCEL OF ANY INSTRUMENTATION, FOR THE COLLECTIVE ADVANCEMENT OF CAMBRIDGE'S HOMELESSNESS SECTOR AND MOSAIC. AS A MATTER OF FACT THE VOLPE CENTER IS IN DIRECT VIOLATION OF TITLE V OF THE MCKINNEY-VENTO HOMELESS ASSISTANCE ACT (42 U.S.C. 11411-11412). REGULATIONS ARE AT 24 CFR PART 581. THAT'S SURPLUS FEDERAL PROPERTIES FOR USE TO ASSIST THE HOMELESS (TITLE V). THE TITLE V PROGRAM HAS HELPED LOCAL GOVERNMENTS REDUCE HOMELESSNESS IN CITIES ACROSS AMERICA.

THE KENDELL SQUARE DEVELOPMENT PLANS FOR THE PUD-KS AREA, INCLUDING THE VOPLE RE-ZONING PETITION DOESN'T INCLUDE ANYTHING USEFUL FOR OUR HOMELESS SUB-POPULATION HERE IN CAMBRIDGE. THIS TYPE OF SELFISHNESS IS A DISREGARD FOR THE NEEDS OF HOMELESS HUMAN BEINGS, TO ACHIEVE THEIR HUMAN SHARE. OUT RIGHT THE VOLPE RE- ZONING PETITION IS ALSO A FAILURE IN HELPING TO FACILITATE SUCH A PROCESS. THE PETITION SHOULD HELP TO MAXIMIZE EACH PERSON ABILITY, INCLUDING THE HOMELESS, TO GAIN BETTER ACCESS TO THE RESOURCES IN THE PUD-KS AREA, AND OTHER AREAS OF KENDALL SQUARE. THE VOLPE RE-ZONING PETITION IS ACTUALLY PART OF AN EXPLOITATION OF POWER, THAT BECOMES A DRIVE FOR DOMINATION, RATHER THAN PARTICIPATION OF HOMELESS CITIZENS.

THE RECENT CHARRETTE ON HOMELESSNESS HELD HERE IN CAMBRIDGE, PRESENTED RECOMMENDATION TO THOSE IN ATTENDANCE AND THE CITY POLICY MAKERS AND ADMINISTRATORS, ETC., ON ENDING HOMELESSNESS HERE IN CAMBRIDGE. THESE RECOMMENDATIONS ARE INTENDED TO PUT HOMELESS PEOPLE INTO UNIQUE POSITIONS, SO THAT THEY CAN OBTAIN AND ACHIEVE, WITHIN THE CONTEXT OF THEIR ENVIRONMENT, THESE THINGS THAT MAXIMIZE THEIR SURVIVAL, AND THE CONTINUATION OF THEM SELVES TO THE BEST OF THEIR ABILITIES.

THE CHARRETTE RECOMMENDATIONS WERE PUT ON THE TABLE AT CITY HALL, TO HELP DEFEND THE HOMELESS FROM THE GREED OF OTHERS, AND TO HELP THE HOMELESS OBTAIN ASYLUM FROM PREDATORY OPPRESSION. THIS RE-ZONING PETITION IS OUT OF STEP WITH THE MASTER PLANNING PROCESS, THE CONSULTANTS HIRE TO IMPLEMENT IT, CAMBRIDGE'S ANNUAL PLANNING PROCESSES THAT MUST BE IN CONCORD WITH CAMBRIDGE'S FIVE YEAR CONSOLIDATING PLANNING/REPORTSAND OTHER GOVERNMENTAL DEPARTMENTS, AND LOCAL PROVIDERS PRIORITIES, TO HELP THE HOMELESS PEOPLE TO ESTABLISH MECHANISM THAT WILL INSURE THE SURVIVAL OF THEMSELVES AND THEIR KIND THROUGH THE ENDING OF HOMELSSNESS.

FINALLY, THE CITY POICY MAKERS, AND MUNICIPAL ADMINSTRATORS SHOULD BE COMMITTED TO PURSUING ALL AVAILABLE AVENUES TO ENSURE THAT FEDERAL, STATE, AND LOCAL AGENCIES, DO NOT CONTINUE TO HOARD SURPLUS PROPERTY THAT COULD BE PUT TO BETTER USE, TO IMPROVE THE LIVES OF HOMELESS INDIVIDUALS AND FAMILIES. THANK YOU.

YOURS IN PEACE,
MR. HASSON J. RASHID
CAMBRIDGE,MA

Lopez, Donna ATTACHMENT H

From: Erik Thorkildsen <erikt@michaeldennis.com>
Sent: Wednesday, November 25, 2015 2:17 PM
To: Lopez, Donna
Subject: FW: Volpe Site - MDA November 25th scheme
Attachments: Volpe Site.EET.2015.11.25.reduced.pdf

From: Erik Thorkildsen
Sent: Wednesday, November 25, 2015 11:53 AM
To: 'council@cambridgema.gov'
Subject: Volpe Site - MDA November 25th scheme

Dear Cambridge City Councilors,

A revised scheme for the Volpe site is attached. It was in part informed by the Planning Board meeting on November 17th. Compared to the scheme I sent you on November 3rd (dated November 2nd), the new scheme increases the amount of green open space, and addresses the areas to the east and west of the 14 acre site. It includes calculations of open space and building gross square footage, and a scale comparison to public spaces in Cambridge and Boston.

The site has great potential to contribute to the City of Cambridge by providing housing (including much needed affordable housing), research space, office space, and retail space, by connecting the surrounding neighborhoods and districts, and by providing legible and meaningful civic open space for the residents of Cambridge. The scheme proposes the creation of a network of streets and open spaces and seeks to envision how much development might be achieved by transforming the site into a live/work community.

The scheme proposes more gross square footage on the site than is currently being targeted, with the idea that this would make the inclusion of more housing financially feasible.

As was the previous scheme, this scheme is partially motivated by the goal of provoking discussion not only regarding the best use of the site, but also of the efforts that Cambridge can make to minimize global warming and protect Massachusetts' landscape from further suburban development by encouraging new construction on brownfield sites within already built-up areas. The attached scheme depicts perhaps close to the maximum plausible density that can be achieved on the site. Using the proposed network of streets and public open spaces as a basis, alternate schemes can be easily generated at different densities.

Please contact me if you would like to discuss the proposed scheme, or would like additional information. My cell phone number is 617-233-8383.

Sincerely,
Erik Thorkildsen

Erik Thorkildsen
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Proposed Scheme for Cambridge's Volpe Site

Erik Thorkildsen
November 25, 2015

Introduction:

This proposal for the design of Cambridge's Volpe site was prompted by the public meeting sponsored by the Cambridge Community Development Department on Saturday October 17, 2015, and was informed by the discussion of the site in the Cambridge Planning Board meeting on November 17th. This scheme is a further development of the Michael Dennis & Associates' November 2nd scheme. The primary differences are that this scheme increases the amount of green open space, and that in addition to addressing the 14 acre Volpe site, it also addresses the areas to the east and west.

The Volpe Site is located in a rapidly growing research and office district just north of the Massachusetts Institute of Technology campus. To the north is the residential area of East Cambridge. The 14 acre site is currently occupied by the 12 story Volpe National Transportation Center and several one and two story buildings. The existing site is a typical product of the anti-urban paradigm that has guided most post-WW2 period planning: its buildings fail to engage the adjoining streets and are surrounded by extensive surface parking lots. A process has begun to develop the site with a combination of research, office, and residential space.

The proposed scheme establishes a network of streets and public spaces, creating a framework for the transformation of the area. These open spaces constitute the site's primary public amenity, organize and interconnect the proposed buildings and programs, and link them to the surrounding districts and neighborhoods.

Proposed Plan of the Volpe Site and the Surrounding Areas

Plan of the Proposed Volpe Site and the Surrounding Areas

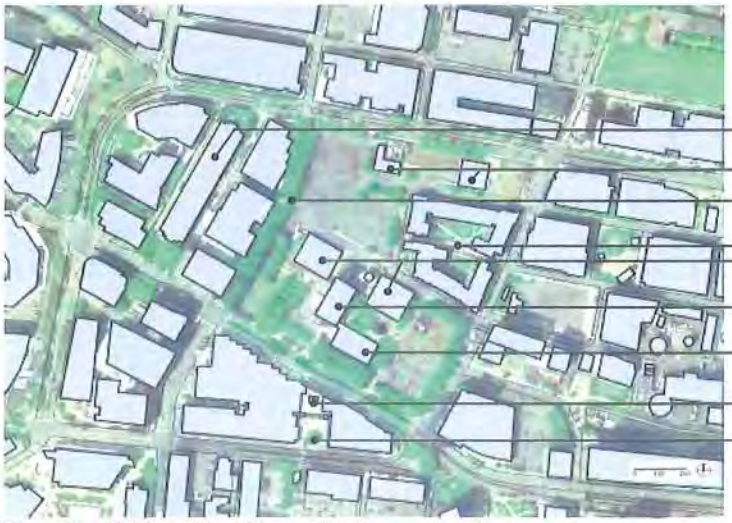
Plan of the Proposed Volpe Site and the Surrounding Areas

The proposed scheme has a floor to area ratio (FAR) of 7.1 on the 14 acre site, a considerable increase over the FAR of 5.4 currently targeted for the site. The proposed increase in density has advantages local to Cambridge and also has broader environmental advantages:

- By increasing the amount of relatively lucrative office and R&D space that the developer can build, the increased total gross square footage should make it possible for the developer to include more housing, and particularly affordable housing, in the programmatic mix.

- The density of the scheme, in conjunction with its varied building scales and uses and its network of public spaces, will contribute to the Cambridge community by creating more opportunities for connection, collaboration, and interaction between its members.

- By developing the site at a fairly high density, and by including building types serving a full range of residential, research, office, and recreational uses, the proposed scheme takes advantage of the inherent efficiencies of urban life: shorter travel times between home and work; lower per-capita energy use and carbon footprint; compact infrastructural systems with lower per-capita demands on natural resources and on operational budgets; and reduced impact on regional landscape and natural habitat.



Plan of the Existing Volpe Site and the Surrounding Areas

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The proposed scheme addresses three semi-independent planning issues:

- **Civic Structure:** The framework of public spaces—streets, squares, public passages, and parks—that constitute the primary public amenities of the site and which connect and organize the site's buildings and programmatic elements.
- **Program:** The mix of uses on the site.
- **Density:** The total amount of built volume on the site relative to its area.

This scheme was made without the benefit of detailed information regarding numerous factors that will determine the ultimate form of the Volpe District. Considerations such as community needs, public initiatives and opinions regarding the site's development and desired characteristics, utility infrastructure, on-site energy generation, net-zero energy, the economics of the programmatic mix, programmatic requirements of research space in terms of dimensions and floorplate, parking requirements, financial proformae, etc. will inevitably change and refine the scheme.

Proposed Scheme - View Looking Northeast across Broadway

Civic Structure:

The proposed scheme transforms the Volpe Site into an urban district. It establishes a network of streets and public open spaces, centered around a central public square and a park. This network of streets and spaces—the site's *civic structure*—connects the disparate districts neighboring the site, links the site's buildings and programs, and constitutes the site's primary public amenity. The site's civic structure is defined by the facades of the buildings that shape it and by the landscape design of its spaces.

The proposed network of north/south and east/west streets creates a relatively fine grained block grid in comparison to the superblock that currently occupies the site, enhancing the pedestrian experience by offering urban porosity and permeability.

At the center of the scheme are two linked public open spaces: a grand public square and a romantically landscaped park. The square—the new Kendall Square—is bordered by buildings of consistent height, with ground floor retail, office space above, and residences on setback upper floors overlooking the square's tree canopy. Wide sidewalks offer space for outdoor dining at cafes and restaurants. The public square opens directly onto Broadway, inviting pedestrians into the heart of the district. Retail passages and glazed gallerias in the adjoining taller office/research buildings accommodate additional retail space and lead to building lobbies.

The Public Square and the Park at the heart of the scheme: linked green spaces along the route of Fifth Street connecting residential East Cambridge to the north with Broadway and the MIT campus to the south.

The site's proposed Civic Structure: the network of streets, walks, passages, parks, squares, and courtyards that organizes and connects the scheme's proposed buildings and programs, and links them to the research/office areas to the east and west, to Broad Canal and the Charles River to the east, to the residential area of East Cambridge to the north, and to the MIT campus to the south.

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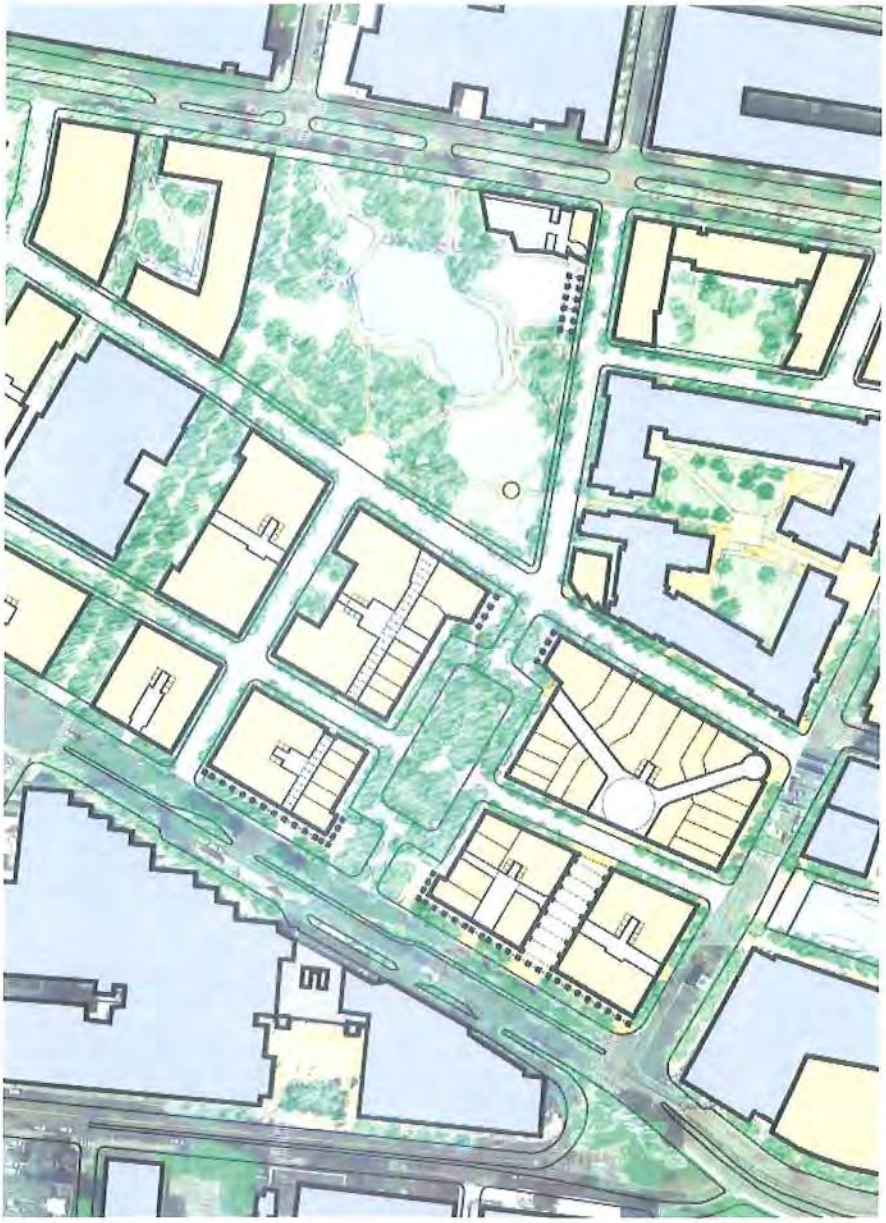
View looking north across Broadway. The existing Marriott Hotel and the Kendall T Plaza are in the foreground. The main masses of the scheme's high-rise buildings fronting on Broadway contain office and research space, their set-back upper floors are residential. The glazed galleria adjoining the tower at the corner of Broadway and Third Street leads to the atrium and retail passages in the building to its north.

View looking south. The Park in the foreground leads to the Public Square, which in turn opens to Broadway, forming a north/south sequence of spaces that complements the north/south pedestrian promenade of Loughrey Walkway. A new north/south street runs through the western part of the site, serving new buildings on the site of the existing parking garage. The primarily residential buildings in the foreground frame the Park, the taller research and office buildings at the opposite side of the scheme define the north side of Broadway.



The Park fills the entire northwest quadrant of the 14 acre site. Its lawns and its groves and allées of tall canopy trees are gathered around a central skating and bird-watching pond. The performance space in the Community Center in the Park's northeast corner opens directly onto the lawn. The bandstand in the Park's southeast lawn provides an additional option for events and performances.

Broadway, a major city street, runs along the south edge of the site. The scheme's Broadway frontage is defined by a series of office/research buildings. A loggia at their retail ground floors enhances the pedestrian quality of the street. A tall and slender tower at the intersection of Broadway and Third Street will accommodate a considerable amount of program and serve as a landmark for the Kendall Square area.

View looking northwest: the tower at the intersection of Broadway and Third Street is a landmark for the Kendall Square area.

Broad Canal is extended to Third Street, in alignment with the site's new east/west street.

The Park is organized around a central pond, and is romantically landscaped with a combination of tall canopy trees, low flowering planting, and open lawn. A loggia/trellis defines its eastern edge, and a bandstand provides a place for public performances. The Community Center at the Park's northeastern corner opens directly onto green lawn and houses a variety of public facilities including a branch of the Cambridge Public Library, meeting spaces, and performance spaces.

Broadway is currently designed on the model of a highway. It should be redesigned to promote pedestrian use and movement, with buildings directly engaging its sidewalks and with multiple pedestrian crossings. The buildings on the south side of Broadway should be investigated for their potential to accommodate ground floor retail space, and their potential to extend to the sidewalk line. Broadway's existing median should be evaluated to make sure that it does not make the street more dangerous by encouraging high vehicle speeds. Vehicular and bicycle lane widths should be evaluated for the optimum balance between traffic modes. A major pedestrian crossing should link the scheme's public square across Broadway through the lobby of the Marriott Hotel to the Kendall T Plaza and on to the MIT campus to the south. This crossing should be modeled after the Massachusetts Avenue crossing at the main entrance to MIT, where the width of the pedestrian zone and the short duration of the traffic light facilitate pedestrian movement while not unduly impeding vehicular traffic.

Broad Canal, connected to the Charles River, is extended to Third Street and widened. It will continue to serve as a marina for Charles River Canoe and Kayak, and in addition will incorporate a water shuttle stop for a new water shuttle running along the Charles and linking the site with North Point Park, the Science Museum/Galleria Mall, Mass General Hospital, the MIT campus at Mass Avenue, Boston University, and Harvard Yard. The canal and the pedestrian paths around it will extend the Volpe site's landscape design to the Charles River and its bicycle paths and waterfront parks. Consideration should be given to providing retail space or restaurants in the buildings facing the canal.

The area immediately west of the Volpe site—"Cambridge Center North"—consists of several office buildings arranged around a parking garage. Several of these buildings are relatively small compared to the potential demand for research, office, and residential space in the area. The scheme proposes a new north/south street through the site connected to the Volpe site's east/west streets, creating a framework for the long term redevelopment of the area.

Potter Street, running east/west through the site, is restored. A new street east/west street is created in alignment with Broad Canal. These streets connect Loughrey Walkway—the tree lined promenade immediately west of the site—and "Kendall Center North"—the research and office area west of the walkway—with the research and office buildings on the east side of Third Street and to the recreational opportunities of Broad Canal. Monroe Street runs west from Third Street to the Park's east entrance.

Dimensions of Open Spaces: The Park is larger than Post Office Square in Boston, a remarkably successful open space surrounded by buildings ranging from 125 feet to 590 feet tall. The Public Square is 180 feet wide and 310 feet long, measuring facade to facade. It is narrower than Harvard's Old Yard and wider than Union Park in Boston's South End. A scale comparison of the Public Square and Park with squares and quadrangles in Cambridge and Boston is included at the end of this document.

Street Widths: The proposed streets are similar in width to successful streets in Boston, for example South Street in the Leather District: Washington Street at Downtown Crossing, and Federal Street near Post Office Square. They are considerably wider than some other very good Boston streets: Bromfield Street, Winter Street, and Portland Street, all of which have fairly tall buildings along them.

Sectional view looking north across Broadway. The proposed public square at the center of the district opens onto Broadway. The square is framed by ground floor retail space; with office and residential space on its upper floors. The wide sidewalks around the Square allow outdoor dining at cafes and restaurants. Taller office/research buildings step back on the east and west sides of the square. The glazed Galleria adjoining the tower on the right of the drawing leads to a retail atrium and passages in the building on the north side of Potter Street.

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Program:

The scheme envisions that most of the buildings on the site are mixed use, combining ground floor retail with office and R&D space, and with residential space on their top floors. In the southern portion of the site, office and R&D space predominates, and retail space occupies as close as possible to 100% of the ground level frontage. The public square is framed by buildings with ground floor retail and restaurants and with office space on their middle floors. Their residential upper floors overlook the canopy trees filling the Square, and reinforce the identity of the district as a live/work community.

The taller buildings arranged around the public square and along Broadway accommodate office and research space, including new space for the Department of Transportation—the replacement Volpe Building—and have residential space on their set-back upper floors. The buildings of the northern portion of the site are predominately residential, relating to the primarily residential district of East Cambridge to the north, and to the existing residential block on Third Street, and should include an ample amount of affordable housing.

The scheme has a total of 4,294,000 GSF of buildings on the 14 acre site. While the ratios between office/R&D space and residential space can be revised to suit demand and financial feasibility, the scheme depicted here has 2,273,000 GSF of office/R&D space and 1,868,000 GSF of residential. Assuming an average of 1,100 GSF per unit, this represents 1,698 units, an increase of 854 over the 1,014 units mentioned in the November 17th Planning Board meeting.

The Community Center at the northeast corner of the Park includes a branch of the Cambridge Public Library, meeting rooms, an auditorium, music practice rooms, performance spaces, dance and aerobics rooms, squash and racquet ball courts, workspaces, and offices for community and neighborhood organizations. Its lobby and ground floor spaces open directly onto the park, allowing indoor/outdoor theatrical and musical performances.

Parking is accommodated throughout the site in underground parking garages. Alternate means of transportation should be supported and expanded so as to minimize the number of spaces needed.

This arrangement of program, and the ratios between its various components, is of course provisional, but every effort should be made to provide the variety of programs and uses essential to the district's success as a live/work/play neighborhood.

The predominately residential buildings in the northern portion of the site frame the park and are compatible in height with the existing Third Square Apartments in the foreground, and with the existing residential buildings on the north side of Binney Street.

Density:

Density and Urban Space: Density can be an asset to the urban experience. The contrast between building mass and public open-space underlies the room-like quality that makes urban spaces memorable and meaningful. A city's streets and squares—its civic scaled public rooms—framed by stores, cafes, restaurants, community space, etc. and activated by people offer a multitude of opportunities for activity and interaction and foster a rich and rewarding urban experience. Positive and legible public urban open space is the means by which we make the density of construction and habitation in a city not only tolerable, but a positive good.

The issue of density on the Volpe Site—the total square footage on the site relative to its area—is more or less independent of the issue of establishing an appropriate arrangement of streets, blocks, public spaces, and parks for the site; the proposed civic structure can be realized at a wide range of densities. The three dimensional drawings and the calculations in this document represent perhaps the upper range of plausible density. Further three dimensional studies should be done to ascertain the optimum density and building massing on the site.

Building Heights: The main masses of the buildings lining Broadway are 250 feet tall, slightly taller than the approximately 225 foot tower of the Marriott Hotel across the street. The residential floors above 250 feet are set back and vary in height, reaching an average of 350 feet. The tower marking the intersection of Broadway and Third Street is 700 feet tall, and is stepped back as it ascends. The buildings in the central and northern portions of the site step down in height from south to north to 120 feet along Binney Street. Alternate versions with higher and lower building heights can be easily generated.

View looking north across Broadway. The proposed public square—the new "Kendall Square"—opens onto Broadway. The square is framed by buildings with ground floor retail space and office and residential space on their upper floors. Taller office/research buildings step back on the east and west sides of the square. A slender tower marks the intersection of Third Street and Broadway. A new small residential tower at the southwest corner of the Third Square Apartment Complex overlooks the north end of the Square.

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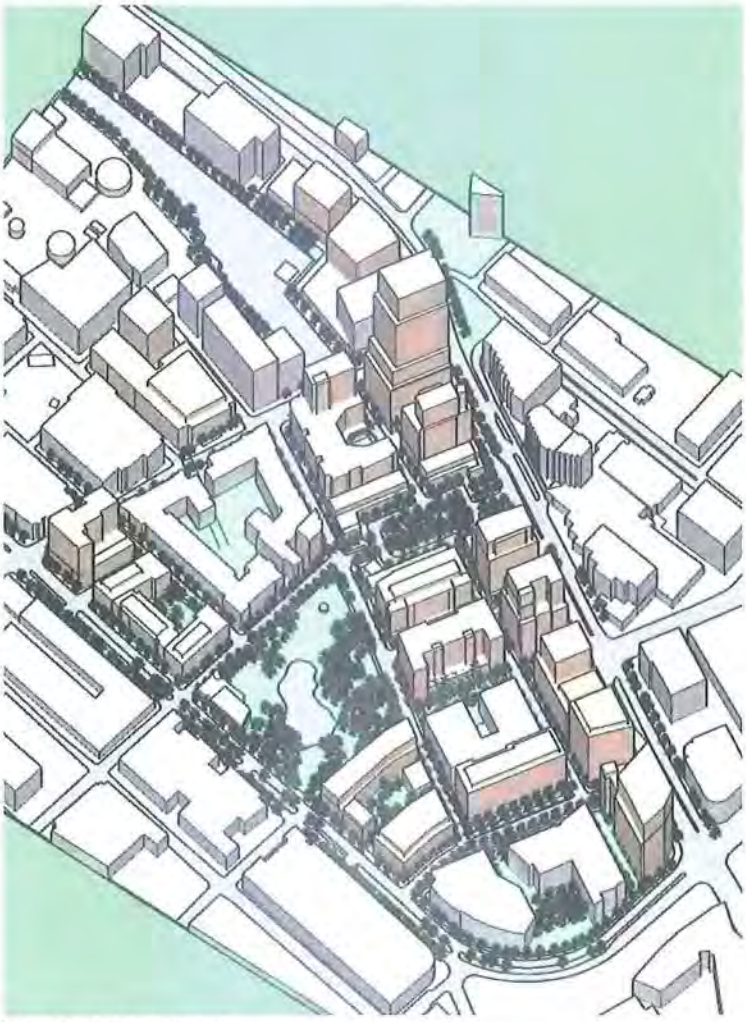
Building Volume: The scheme proposes a total of about 4,294,000 GSF of buildings on the site, an increase of 947,000 GSF over the 3,347,000 GSF currently targeted for the site (including the replacement for the Volpe Building). The intent is that the additional square feet will consist of both residential space and office/R&D space, that the increased amount of the more lucrative office and R&D space will make the augmentation of the scheme's residential space financially feasible.

The Scheme's Density in Local, Regional, and Planetary Contexts: The scheme attempts to demonstrate that this additional gross square footage and higher density can be achieved not only without detriment to the quality of life on the site and the surrounding area, but that it can be beneficial, strengthening the sense of place and the variety of social, and intellectual opportunities available if the higher density is given form by a spatially coherent network of streets and public spaces.

It should be noted that the Volpe Site is already surrounded by large scale development. The site is, in effect, encapsulated by these buildings. The site can be developed at a fairly high density without directly impinging on Cambridge's traditional neighborhoods. The density proposed on this site (and potentially on analogous brownfield sites in Cambridge), should be achieved in conjunction with zoning that protects intact smaller-scaled residential areas of our city.



View from the northwest

In light of regional and global environmental concerns, I would advocate for the maximum density compatible with quality of life in Cambridge. Every building constructed here, rather than in outlying areas, will help to minimize the waste of energy and material resources endemic to suburban development, and will help to minimize destruction of farmland and relatively "natural" areas of our landscape. As we move (ever so slowly) toward taking positive action in response to the planetary emergencies of global warming and habitat loss, we should take advantage of the inherent energy efficiency, lower carbon footprint, and preservation of natural landscape that density of construction and habitation make possible.

Finding the best achievable balance between on the one hand the goal of protecting our regional landscape from sprawl and our planet from global warming by concentrating new development on this and other brownfield sites within Cambridge, and on the other hand the goal of avoiding undue impact on Cambridge's existing neighborhoods, will require listening to our community and taking the long term implications of new construction into account. These decisions will have impacts not only on Cambridge itself, but also on the landscape of Massachusetts and will be significant both symbolically and practically as we move toward minimizing the damage we do to the planetary environment.

Summary of the Areas of Public Open Spaces:

Public Square	Measuring from facade to facade 1.50 acres	Subtracting the Streets 0.94 acres	Grass and Tree Island Only 0.43 acres
Park	Measuring to sidewalk line and facade of Community Center 3.34 acres	3.34 acres	3.34 acres
Other Green Spaces	Measuring to sidewalk line and facades of buildings .043 acres	.043 acres	.043 acres
Total Open Space	5.27 acres 37% of 14 acre site	4.71 acres 33% of 14 acre site	4.20 acres 30% of 14 acre site

Summary of Building Gross Square Footages:

Residential	1,868,000 GSF 1698 units @1,100 GSF/unit
Office/R&D	2,273,000 GSF
Retail	216,000 GSF
Community Center	37,000 GSF
Total	4,294,000 GSF on the 14 acre site FAR = 7.1

Scale Comparisons:

Volpe Site: the Park and the Public Square

Harvard University: the Old Yard on the left and the New Yard on the right

Boston: Old Burial Ground

Boston: Post Office Square, framed by buildings ranging from 125 to 590 feet tall

Boston: Union Park

Boston: Louisburg Square

Lee Farris

To: Cambridge Mayor and City Councilors
From: Cambridge Residents Alliance
Subject: Cambridge Residents Alliance opposition to approval of the current Volpe petition
Date: Nov. 30, 2015

The Volpe tract is a critical location for linking Cambridge neighborhoods. The Volpe parcel is one of the largest left in Cambridge, so dramatically increasing its zoning will impact all of Cambridge. It does not make sense to approve a petition for a 100% build-out of the Volpe site now, because the petition includes a massive increase in density and vehicle trip generation, and cuts off all zoning options that will emerge as feedback from the new citywide planning process.

The current Volpe upzoning petition was drafted by the Community Development Dept., and has been approved with some changes by the Planning Board.

Development density

The CDD petition has a radical increase in building heights and density compared with the K2 Plan in 2013 and the ECAPS report in 2001.

GFA (sq. ft. allowed): Compared to ECAPS, the CDD petition increases commercial space by 63% and residential space by 15%; it will allow an increase from a total of 2 million square feet to almost 3 million sq. ft.

FAR (density): ECAPS: 3.0 commercial, 3.36 residential. K2: 4.0. The CDD petition: 5.4, counting the federal land and building.

Height: ECAPS: some sections of 65,' some up to 250'. K2: Allow limited heights up to 250' (commercial) and 300' (residential). The CDD petition: possible multiple buildings 500' tall; they can be commercial or residential. For comparison, the Marriot Hotel in Kendall Sq. is 290'; the Courthouse is 280'; and Rindge Towers is 270'. In Boston, the Pru is 750'; 111 Huntington Ave. (the building with a crown on top) and One Post Office Sq. are both around 500'.

The Planning Board made changes on 11/17/15 to increase "flexibility" for the developer: Instead of one single 500-foot-tall building, the board could allow **multiple 500-foot buildings**. The board could also allow the buildings to be wider at heights above 250'.

Housing

ECAPS, K2, and this petition all require a 40% minimum of housing. The CDD petition will result in about 1000 units. Given that Kendall Sq. already has a very high proportion of commercial space relative to residential space, any increase in density or height above the current zoning should go largely to housing. The rezoning should increase the required minimum residential space to **at least 60%,** instead of the current 40%. There is no mechanism to encourage homeownership, so the housing will likely be rental; encouragement of homeownership of some units should be added.

The increase in **below market housing** to 20% (15% low/moderate-income and 5% middle-income) is good, but is not adequate. Instead the Cambridge Residents Alliance calls for the petition to **require at least 20% low/moderate and 5% middle-income housing**, and in fact, substantially more is needed. **All** of the required 3BRs should be affordable to low, moderate, and middle-income families, which would ensure that they are inhabited by families, rather than by roommates.

Traffic

A new traffic study by CDD said the pace of development will be faster than predicted in 2012; Kendall will now be built out by 2030. The study stated increased vehicle trips for full build out for all of Kendall Sq. development: 10,012 office, 2154 res., 1891 retail. Total increase = 14,057 vehicle trips/day.

The city/state Kendall Square Mobility Task Force will release transportation recommendations in early 2016. The Volpe rezoning should not be finalized until these recommendations can be integrated into the planning.

Open Space

ECAPS and K2 both required a public park of 7.5 acres, or 42% of the total space; the new CDD zoning would only require 3.5 acres or 25% of the land to be public open space. That is a huge reduction, especially given the huge increase in the density and heights of the buildings, which instead should require an increase in open space.

The new CDD zoning **should require a large public park of at least 5 acres, with a public easement on the park land.** The current language permitting half of the public open space to be on federal land is not acceptable. None of the federal government's open space should count toward the open-space requirement, because the federal government could choose to tighten its access restrictions at any time. In addition, sidewalks, roof decks, roadways should not count when calculating open space.

Health and Safety

The health and safety provisions of individual building review are weakened in the proposed zoning. The CDD zoning reduces existing zoning requirements that provide for measurement and mitigation of the impacts of large buildings, such as shadows, excessive wind, light, noise, and views. These health and safety provisions should be at least as strong as in the current zoning.

Community Benefits

The proposed petition does not say community benefits should go to the nearby neighborhoods. Instead, a significant portion of community benefits should be invested in the most impacted neighborhoods adjacent to the development, and made part of a participatory budgeting process for residents.

Governance process

A quick financial analysis was done by the Redevelopment Authority's consultant HR&A. It stated that the proposed zoning would enable the developer to earn a "modest" profit of 15%. The Planning Board concluded that analysis meant no further community benefits could be required in the zoning. They noted that the developer would very likely come back to request further changes in the zoning. Although councilors and residents need more information to understand the impact of additional desired changes to the petition, financial analysis should not cause the city to approve upzoning unless that upzoning benefits the city as a whole.

There has been little public process to develop the current petition's changes to the K2 plan. The city should either fold the proposed Volpe zoning changes into the citywide planning as an early action item, or start the planning over and create a residents' advisory committee. The Volpe petition, the MXD petition, and the already approved MIT development proposals will have inter-related impacts on housing, traffic, innovation space, and open space, so those proposals should be considered together. We ask that you do not approve the Volpe petition without revising it to address all the concerns discussed above.

Lopez, Donna ATTACHMENT J-1

From: Bethany Stevens <bethanystevens@me.com>
Sent: Sunday, November 29, 2015 11:00 AM
To: City Council
Cc: Lopez, Donna; Paden, Liza; City Manager; Jan Devereux; Farooq, Iram
Subject: Dec. 1 ordinance hearing - alternatives
Attachments: alternative plan proposal.pdf; PUD-KS2 alternative proposal.jpeg

Dear Councilors,
Attached please find an alternative proposal the East Cambridge Planning Team's Volpe Subcommittee has put together to demonstrate that open space and building height does not need to be sacrificed to achieve GSA's redevelopment goals. While there are still questions about whether the proposed density is too high and whether the City's infrastructure capacity can support such density at this site, even within the framework of this increased density, we do not believe the City's primary goals regarding open space and building height need to be sacrificed.

Please include the two attachments: the pdf file explaining the alternative proposal and a map of this alternative proposal, as part of the record for the upcoming December 1st Ordinance hearing.

Sincerely,

Bethany Stevens
100 Spring Street
Chair, ECPT Volpe Subcommittee

ATTACHMENT J-2

Bethany Stevens, Chair
Subcommittee on Volpe
East Cambridge Planning Team
bethanystevens@me.com

November 27, 2015

Dear City Council, Councilor-Elect Jan Devereux, CDD, and Planning Board:

The attached plan demonstrates that even if the forthcoming financial analysis dictates that the GFA must be increased to the very high extent suggested in the 11/9/15 rezoning proposal, there is no need to increase heights above 300′ or to require any less than 5 acres of non-Federal open space.

Features of the plan:

- It accommodates all the GFA and housing GFA in the 11/9/15 proposal (and even slightly more, leaving some flexibility).
- It has no buildings over 300′. As the CDD observed on page 22 of their 5/5/15 PUD-KS Zoning Proposal Revisions, "Not much is gained on the ground by increasing to 400′ (podium requirements are large)".
- It accommodates *more* than 5 acres of non-Federal open space, including a 4.8-acre public park. Sufficient open space is necessary for stormwater management, to prevent flooding. This memorable park could contain a monument, a fountain, a nature walk with a pond, a civic gathering space, a picturesque flower garden with brick-paved walkways, and/or ....
- The Federal Government retains a 2-acre site. As the map shows, this is more than enough for an 80-foot buffer around its new 375,000 sq. ft. building (more than the 50-foot buffer assumed by CDD on page 21 of their 5/5/15 PUD-KS Zoning Proposal Revisions). In fact, the FAR on the Federal part of the site in this plan, 4.3, is still substantially less than the effective FAR on the non-Federal part of the site.
- The public park is well framed, and has a network of fingers reaching out westwards and towards 5th St. and the residential neighborhoods to the north. A dramatic arch placed on Binney St. opposite 5th St. could mark the entrance into the Volpe park.
- The heavily used pedestrian routes through the Volpe site will be those emanating from the T Station, once all the construction in the surrounding areas is completed. Pedestrians exiting the T and passing through the Marriott will immediately see natural routes leading them *through the park*, connecting to Broad Canal, or diagonally to 3rd St. heading north, or northward to 5th St. and the older residential neighborhoods, whatever their destination is.
- New residential buildings overlook the park, or look out over lower buildings.

- Height increases gradually from north to south.
- Aligning taller buildings along a north-south axis (along the western half of the site) minimizes the cityscape as seen from the nearest residential neighborhoods.
- The Loughrey Walkway (Mid-Block Connector) could become a pedestrian market with ground-level retail. The new residential buildings along the park should also house ground-level retail.
- The Federal building will have no retail, so it makes sense to place it in the interior of the site, instead of along a major street.
- The plan respects all the K2 design guidelines regarding height, setbacks, and building separation, except that the building at upper left along Binney is permitted to reach 200 feet. (This would have been allowed also in the 11/9/15 proposal.)
- There is still ample flexibility. The ratio of residential to commercial GFA can be adjusted simply by redesignating office buildings as residential buildings, or by adjusting the height above which a mixed building becomes residential. The total GFA can be increased by placing a 250′-300′ residential tower on the 250′ office building that does not yet have one. The total GFA can be decreased by shrinking footprints, or by removing buildings. The positions of the buildings can be rearranged and the shapes of the buildings can be changed, since the GFA can be reduced slightly while still accommodating the 2,972,000 non-Federal square feet asked for.

Some comments on the map:

- All the trees shown are existing trees from the satellite image. Many of the existing trees on the public park are mature trees more than five stories high.
- Opacity indicates building height.
- The buildings at lower left are office space up to 250′ (blue) with the part from 250′ to 300′ being residential (yellow).
- Buildings are set back above 85′ to minimize the appearance of height from the ground, as recommended by the K2 design guidelines.
- Two short paved access roads, off of Binney and off of Broadway, are added in gray so that every building can have a loading dock along a road that is not Broadway, Binney, or 3rd St.
- Actual shapes of buildings should be more interesting than shown; the map is intended only to give a rough sense of the layout at this density.

Conclusions: There have been fears that if we do not increase heights beyond 300′ and if we do not reduce open space, then it will be impractical to build enough GFA and the deal will be killed. The present plan shows that such fears are unfounded. What remains is only the question of whether the City of Cambridge wants to proactively guide the design, instead of letting the development spread over most of the land in whatever shape. To guarantee that

the City benefits from the layout and the open space, please consider the following zoning suggestions:

- Require at least 5 acres of non-Federal open space. It is important that it be non-Federal, since after all the construction is finished, the Federal Government could decide to build a *second* building on its open space, and the City would be powerless to prevent this.
- Require that the southeast corner bounded by Broadway, 3rd, and Potter Streets be made a public park.
- Limit building height to 300′, and require that any building portion above 250′ be residential.

Finally, if the financial analysis ends up showing that less than 2,972,000 non-Federal square feet of GFA are required, then please reduce the FAR or increase the housing percentage.

Sincerely,

Bethany Stevens, Chair
Subcommittee on Volpe
East Cambridge Planning Team


200'
85'
200'
85
250
Federal 2 acres
300'
300'
300'
300'
Public park ~5 acres
Binney St
Rogers St
Broadway
Main St
Potter St
Munroe St
Third St
Kendall St
Broad Canal Way
Athenaeum St
Linskey Way
Mid Block Connector
Cambridge Center
Kendall Crossing Apartments
Lofts at Kendall Square Apartments
hack reduce
Alnylam Pharmaceuticals
Fuji at Kendall
Third Square Apartments
Abigail's
Xylem
Tatte Bakery & Cafe
Squeaky Beaker Cafe
L'Aceituna Cafe
Voltage Coffee & Art
Genzyme Corporation
Starbucks
Ames Street Deli
Study
Aurora Flight Sciences Corporation
Boston Marriott Cambridge
Google CAM SOC
Champions
Chipotle Mexican Grill
One Broadway
Firebrand Saints
Charles River Canoe and Kayak
Commonwealth Market & Restaurant
Kendall Square
American Red Cross
Cambridge Athletic Club
The Kendall
MIT Press Bookstore
Cosi
US Post Office
Bank of America
Momogoose Food Truck
Google My Maps

Lopez, Donna ATTACHMENT J-3

From: Beth Stevens <beth100springstreet@gmail.com>
Sent: Sunday, November 29, 2015 11:10 AM
To: City Council
Cc: Lopez, Donna; Paden, Liza; Jan Devereux
Subject: Fwd: ECPT Volpe Subcommittee - letter re: Nov 17 economic presentation
Attachments: HighCost.pdf; ATT00001.htm; rlb-usa-report-third-quarter-2015.pdf; ATT00002.htm; ECPT-Volpe-subcommittee-letter 112215.pdf; ATT00003.htm

I am including the attached materials that were sent prior to last Monday's City Council meeting. I am sending again to ask that they be included as part of the record for the upcoming December 1st Ordinance Committee hearing.

Thank you,

Bethany Stevens
Chair, ECPT Volpe Subcommittee

Begin forwarded message:

From: Beth Stevens <beth100springstreet@gmail.com>
Subject: ECPT Volpe Subcommittee - letter re: Nov 17 economic presentation
Date: November 23, 2015 at 12:28:50 PM EST
To: "Farooq, Iram" <ifarooq@cambridgema.gov>
Cc: Council@cambridgema.gov, Liza Paden <lpaden@cambridgema.gov>, tevans@cambridgeredevelopment.org, City Manager <citymanager@cambridgema.gov>, Jan Devereux <jan.devereux@gmail.com>

Dear Iram,
Thank you for taking the time to meet with members of the ECPT Volpe Subcommittee last Monday, November 16, 2015. Several of the subcommittee members attended the Planning Board hearing on November 17, 2015 and learned about the financial presentation assembled by Tom Evans and the updates on the traffic study. Since this information was new on November 17, 2015, the Subcommittee did not get an opportunity to discuss this with you on the 16th and looks forward to having the opportunity to do so as we have many questions relative to those critical data pieces as they relate to the up-zoning proposal.

In the meantime, we provide the following feedback with respect to the financial presentation in the attached letter and documents referenced in the letter. As you can see, there are still a lot of questions that remain unanswered. We are disappointed that the Planning Board has approved the zoning petition based on

this preliminary information, and expect that the Ordinance Committee will require a more detailed analysis before deciding what concessions the City is willing to make in this unprecedented land swap deal.

We look forward to your presentation at ECPT on December 9th as many members beyond the ECPT Volpe Subcommittee have questions about the newly acquired information relative to finances and traffic, as well as concerns about the limitations on open space, housing and the relaxed building heights proposed by the Planning Board.

We look forward to continuing to work with you to ensure that the final outcome achieves the best possible result for the City.

Sincerely,

Bethany Stevens
Chair, ECPT Volpe Subcommittee

p.s. As Peter Crawley has taken on the presidency of ECPT, I have taken over the duties of Chair of the Subcommittee. Please feel free to communicate with me directly.

CHAPTER 5

THE HIGH COST OF MINIMUM PARKING REQUIREMENTS

Donald Shoup

ABSTRACT

Purpose — *This chapter estimates how minimum parking requirements increase the cost of constructing housing, office buildings, and shopping centers. It also explains proposed legislation to limit how much parking cities can require in transit-rich districts.*

Methodology — *I assembled data on the cost of constructing office buildings, shopping centers, and parking spaces in eight American cities, and data on the minimum parking requirements in these cities. I then combined the parking construction costs with the number of required parking spaces for each land use to estimate how the minimum parking requirements increase development costs for office buildings and shopping centers.*

Findings — *Minimum parking requirements increase the cost of constructing a shopping center by up to 67 percent if the parking is in an aboveground structure and by up to 93 percent if the parking is underground.*

In suburban Seattle, parking requirements force developers to spend between $10,000 and $14,000 per dwelling to provide unused parking spaces.

Parking: Issues and Policies
Transport and Sustainability, Volume 5, 87–113

ISSN: 2044-9941/doi:10.1108/S2044-994120140000005011

On a typical construction site in Los Angeles, parking requirements reduce the number of units in an apartment building by 13 percent.

Practical implications – *To mitigate the high costs imposed by minimum parking requirements, California is considering legislation to set an upper limit on how much parking cities can require in transit-rich districts: no more than one space per dwelling unit or two spaces per 1,000 square feet (93 square meters) of commercial space. This legislation would limit parking requirements, but it would not limit the parking supply because developers can always provide more than the required number of spaces if they think demand justifies the added cost.*

Value of paper – *This chapter measures how minimum parking requirements increase the cost of housing, office buildings, and shopping centers in order to subsidize parking. Urban historians often say that cars have changed the city, but urban planning has also changed the city to favor cars.*

Keywords: Parking; parking requirements; real estate; infill development; housing

A city can be friendly to people or it can be friendly to cars, but it can't be both.

– Enrique Peñalosa

City planners are put in a difficult position when asked to set the minimum parking requirements in zoning ordinances, largely because they must rely on guesswork. Planners do not know the parking demand at every site, or how much the required parking spaces cost, or how the requirements increase the cost of urban development. Nevertheless, planners have managed to set parking requirements for hundreds of land uses in thousands of cities – the Ten Thousand Commandments for off-street parking.

Critics of minimum parking requirements argue that these regulations subsidize cars, increase traffic congestion and carbon emissions, pollute the air and water, encourage sprawl, raise housing costs, damage the economy, degrade urban design, reduce walkability, and exclude poor people. To my knowledge, no city planner has argued that parking requirements do *not* have these harmful effects.

In *Parking Reform Made Easy*, Richard Willson (2013a) recommends analytical and practical ways for planners to justify reducing or eliminating parking requirements. As Willson says, "All the land-use plans, design

reviews, and streetscape renderings in the world will not produce desired outcomes if we do not reform parking requirements" (Willson, 2013b, p. 30). But planners must first *want* to reform before anything will happen.

To show the need for reform, this chapter examines how parking requirements can dramatically increase the cost of constructing new buildings. After all, if planners do not know how much required parking spaces cost, they cannot know how much the parking requirements increase the cost of development. So how much do the required spaces cost, and how much do they increase the cost of urban development? I will answer these questions, and will then use the answers to make the case for reducing or removing off-street parking requirements.

THE COST OF REQUIRED PARKING SPACES

Because construction costs vary by location, there is no single measure of how much a parking space costs. But we can estimate the price tag in different locations by using published estimates of local construction costs. Rider Levett Bucknall (RLB), an international consulting firm that specializes in estimating real estate construction costs, publishes quarterly cost estimates for several real estate categories in cities around the world, including 12 cities in the United States.[1] Table 1 presents RLB's estimates of the average cost of parking spaces in these 12 American cities in 2012. Even within the same city, the cost can vary according to the soil conditions, the height of the water table, the shape of the site, and many other factors. RLB therefore reports both a low and a high construction cost; for simplicity; I have used the average of these two costs for each city.

Columns 1 and 2 show the average cost per square foot to build underground and aboveground parking structures. The average parking space, including the access aisles, occupies about 330 square feet (31 square meters). Given this size, Column 3 shows the cost per parking space for an underground garage. For example, the average cost of constructing an underground garage in Boston is $95 per square foot, and the average space occupies 330 square feet, so the average cost of a parking space is $31,000 ($95 × 330). Across the 12 cities, the average cost per space ranges from a low of $26,000 in Phoenix to a high of $48,000 in Honolulu, with an overall average of $34,000 per space. For an aboveground garage, the cost per space ranges from $17,000 in Phoenix to $29,000 in Chicago and San Francisco, with an average of $24,000.

Table 1. The Construction Cost of a Parking Space.

City	Construction Cost per Sq Ft		Construction Cost per Space	
	Underground $/sq ft (1)	Aboveground $/sq ft (2)	Underground $/space (3) = (1) × 330	Aboveground $/space (4) = (2) × 330
Boston	95	75	31,000	25,000
Chicago	110	88	36,000	29,000
Denver	78	55	26,000	18,000
Honolulu	145	75	48,000	25,000
Las Vegas	105	68	35,000	22,000
Los Angeles	108	83	35,000	27,000
New York	105	85	35,000	28,000
Phoenix	80	53	26,000	17,000
Portland	105	78	35,000	26,000
San Francisco	115	88	38,000	29,000
Seattle	105	75	35,000	25,000
Washington, DC	88	68	29,000	22,000
Average	103	74	34,000	24,000

Source: Rider Levett Bucknall, *Quarterly Construction Cost Report, Third Quarter* (2012).

These estimates refer to the cost of *constructing* a parking space. For an aboveground garage, the land beneath the garage is another cost. Underground garages also occupy space that could be used for other purposes, such as storage and mechanical equipment, and the opportunity cost of this space has been called the underground land value.[2] Because numbers in Table 1 do not include the cost of land, they underestimate the total cost of parking spaces.[3]

To put the cost of parking spaces in perspective, we can compare this cost with the value of the vehicles parked in them. In 2009, the U.S. Department of Commerce estimated that the total value of the nation's 246 million motor vehicles was $1.3 trillion. The average value of a motor vehicle was therefore only $5,200.[4] (This average value seems low because the median age of the fleet was 10.3 years in 2009.) Because the average cost of an underground parking space is $34,000, the average vehicle is therefore worth about 15 percent of this cost ($5,200 ÷ $34,000). And because the average cost of an aboveground garage space is $24,000, the average vehicle is worth about 22 percent of this cost ($5,200 ÷ $24,000).

A parking space can cost much more than the value of the car parked in it, and there are also several parking spaces for every car. Using aerial

photographs of all the off-street parking lots in Illinois, Indiana, Michigan, and Wisconsin, Davis et al. (2010) found between 2.5 and 3 off-street surface parking spaces per vehicle registered in these states. In addition, Zhan Guo and Luis Schloeter (2013) estimated that suburban streets alone contain more than enough on-street parking spaces to park all the passenger cars in the United States.

Parking spaces outnumber cars, and each space can cost much more than a car parked in it, but planners continue to set parking requirements without considering this cost. If I buy the average American car for $5,200, cities require someone else to pay many times more than that to ensure that parking spaces will be waiting for me whenever and wherever I drive. Minimum parking requirements amount to an Affordable Parking Act. They make parking more affordable by raising the costs for everything else. So who does pay for all these required parking spaces?

THE COST OF PARKING REQUIREMENTS FOR OFFICE BUILDINGS

Most cities require parking in proportion to the size of a building, such as 4 spaces per 1,000 square feet of building area. We can use the RLB data on the cost of parking spaces to show how parking requirements increase construction costs. Eight of the 12 cities in Table 1 require parking in direct proportion to the size of an office building.[5] We can calculate the cost of required parking per 1,000 square feet of building area in these eight cities by combining the parking requirements with the cost of constructing a parking space.

Table 2 shows how the cost of satisfying the parking requirement increases the total cost of constructing an office building. Column 1 shows the minimum parking requirement in each city, although certain areas of the city may have higher or lower requirements according to their specific area plans. Las Vegas, for example, requires 3.3 spaces per 1,000 square feet. Because the average size of a parking space is 330 square feet, this translates to 1,100 square feet of parking per 1,000 square feet of office building (Column 3). Thus, Las Vegas requires parking structures that are bigger than the buildings they serve.

Columns 4 and 5 show the RLB data on the cost per square foot for an office building and an underground garage.[6] Column 6 shows the cost of constructing 1,000 square feet of an office building, and Column 7 shows

Table 2. The Cost of Parking Requirements for Office Buildings — Underground Parking Structure.

City	Parking Requirement	Building Area	Parking Area	Construction Cost		Building Cost	Parking Cost	Cost Increase
				Building	Parking			
	Spaces/1,000 sq ft	Sq ft	Sq ft	$/sq ft	$/sq ft	$	$	%
	(1)	(2)	(3) = (1) × (2) × 0.33	(4)	(5)	(6) = (2) × (4)	(7) = (3) × (5)	(8) = (7)/(6)
Las Vegas	3.3	1,000	1,100	148	105	148,000	116,000	78
Phoenix	3.3	1,000	1,100	128	80	128,000	88,000	69
Honolulu	2.5	1,000	825	233	145	233,000	120,000	52
Portland	2.0	1,000	660	138	105	138,000	69,000	50
Los Angeles	2.0	1,000	660	158	108	158,000	71,000	45
Denver	2.0	1,000	660	125	78	125,000	51,000	41
Seattle	1.0	1,000	330	138	105	138,000	35,000	25
New York	1.0	1,000	330	225	105	225,000	35,000	16
Average	2.1	1,000	708	161	104	161,625	73,125	47

Source: Rider Levett Bucknall, *Quarterly Construction Cost Report, Third Quarter* (2012).

the cost of constructing the required parking. Finally, Column 8 shows that the required parking increases the cost of an office building in Las Vegas by 78 percent. Because most developers will provide some parking even if the city does not require it, the parking requirements are not responsible for all the money spent on parking. Nevertheless, Columns 7 and 8 show the minimum cost of the required parking for buildings with underground garages.

The high cost of structured parking gives developers a strong incentive to build in low density areas where cheaper land allows surface parking, thus encouraging sprawl. Surface lots cost developers less money but they cost the city more land that could have better and more profitable uses.

Table 2 ranks cities by how much the required parking increases the cost of office buildings (Column 8), which turns out to be the same ranking as by the size of the parking requirement (Column 1). Las Vegas and Phoenix have the highest parking requirements (3.3 spaces per 1,000 square feet) and the highest cost increases (78 percent and 69 percent). Seattle and New York have the lowest parking requirements (1 space per 1,000 square feet) and the lowest cost increases (25 percent and 16 percent). The last row shows that the required parking increases the average cost of an office building by 47 percent.

Table 2 shows the results for underground parking. Table 3 shows the same calculations for an aboveground garage. On average, the cost of providing the required parking in an aboveground structure adds 30 percent to the cost of an office building. Fig. 1 compares these results from Tables 2 and 3. The higher the parking requirement, the more it costs to construct an office building.

The average parking requirement for office buildings in these eight cities is only 2.1 spaces per 1,000 square feet, which is lower than in most American cities. One survey of 117 cities, for example, found that the median parking requirement for office buildings was 4 spaces per 1,000 square feet, which is almost double the average requirement in Tables 2 and 3. Some planners call this requirement of 4 parking spaces per 1,000 square feet for office buildings the "golden rule" or "magic number" (Shoup, 2011, pp. 612–613).

All this required parking takes up a lot of space. Fig. 2 compares the area of parking required for a 100,000-square-foot office building with the area of the buildings themselves in 45 American cities. While the parking lots look large in proportion to the buildings, most of these cities have atypically low parking requirements. Only one city in Fig. 2

Table 3. The Cost of Parking Requirements for Office Buildings – Aboveground Parking Structure.

City	Parking Requirement	Building Area	Parking Area	Construction Cost		Building Cost	Parking Cost	Cost Increase
				Building	Parking			
	Space/1,000 sq ft	Sq ft	Sq ft	$/sq ft	$/sq ft	$	$	%
	(1)	(2)	(3)=(1)×(2)×0.33	(4)	(5)	(6)=(2)×(4)	(7)=(3)×(5)	(8)=(7)/(6)
Las Vegas	3.3	1,000	1,100	148	68	148,000	74,000	50
Phoenix	3.3	1,000	1,100	128	53	128,000	58,000	45
Portland	2.0	1,000	660	138	75	138,000	50,000	36
Los Angeles	2.0	1,000	660	158	78	158,000	51,000	32
Honolulu	2.5	1,000	825	233	83	233,000	68,000	29
Denver	2.0	1,000	660	125	55	125,000	36,000	29
Seattle	1.0	1,000	330	138	75	138,000	25,000	18
New York	1.0	1,000	330	225	85	225,000	28,000	12
Average	2.1	1,000	708	161	71	161,625	48,750	30

Source: Rider Levett Bucknall, *Quarterly Construction Cost Report Third Quarter* (2012).

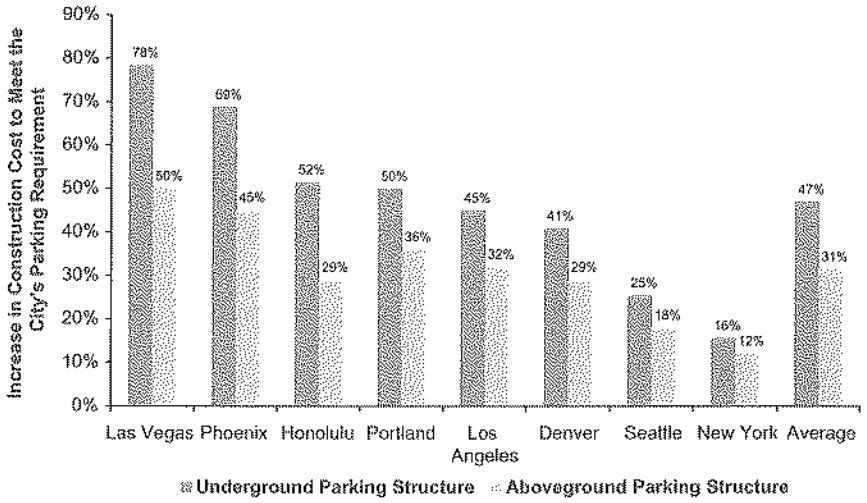


Fig. 1. How Parking Requirements Increase the Cost of Constructing Office Buildings.

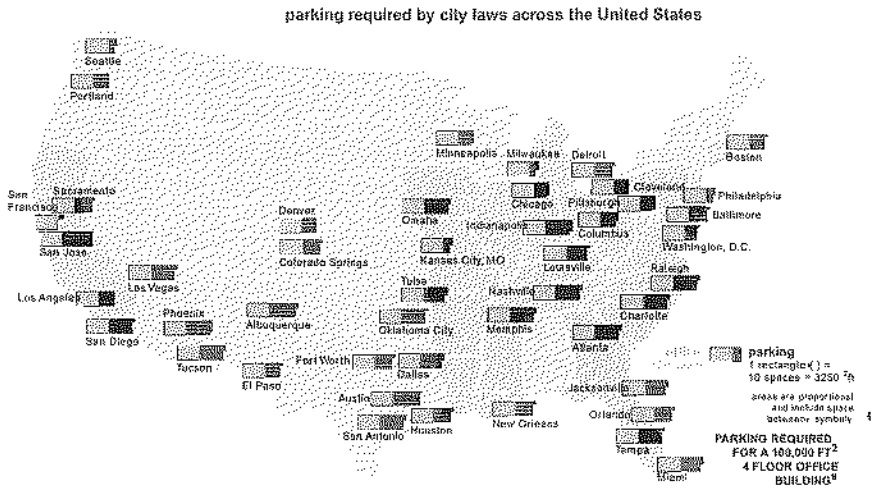


Fig. 2. Graphing the Parking Requirements for Office Buildings in 45 American Cities. *Source*: Reproduced from *Graphing Parking*, with permission from Seth Goodman (2013).

(San Jose) requires the common number of 4 spaces per 1,000 square feet of an office building.

THE COST OF PARKING REQUIREMENTS FOR SHOPPING CENTERS

Because RLB also provides data on the cost of shopping centers, we can use the method described above to estimate how parking requirements increase the cost of building a shopping center. Tables 4 and 5 and Fig. 3 show these estimates for underground and aboveground parking structures.

Cities usually require more parking for shopping centers than for office buildings. Los Angeles's requirement of 4 spaces per 1,000 square feet, for example, leads to parking lots that are 32 percent larger than the shopping centers they serve. For underground parking, this requirement increases the cost of building a shopping center by 93 percent; for an aboveground garage the cost increase is 67 percent. In contrast, New York City's requirement of 1 space per 1,000 square feet increases the cost of a shopping center by only 18 percent for underground parking and 14 percent for an aboveground garage. On average, the required off-street parking increases construction costs by 53 percent if underground and by 37 percent if aboveground.

The average parking requirement for shopping centers in these eight cities is only 2.8 spaces per 1,000 square feet, which is lower than in most American cities. The Urban Land Institute recommends at least 4 spaces per 1,000 square feet for small shopping centers, and 5 spaces per 1,000 square feet for large shopping centers (Shoup, 2011, pp. 84–87). Five parking spaces per 1,000 square feet would increase the average cost of constructing a large shopping center by 95 percent if underground, and by 66 percent if aboveground.

Parking requirements would do no harm, of course, if they did not force developers to provide more parking than they would supply voluntarily. But research has repeatedly found that developers usually provide only the required number of parking spaces, which strongly suggests that the requirements drive the parking supply. Most recently, using data on 9,279[4] properties in Los Angeles County, Cutter and Franco (2012, Table 8) found that developers provided almost exactly the number of parking spaces that cities require for office buildings. In their study, the average parking requirement was 3.02 spaces per 1,000 square feet, and the average parking supply was 3.03 spaces per 1,000 square feet.

Table 4. The Cost of Parking Requirements for Shopping Centers – Underground Parking Structure.

City	Parking Requirement	Building Area	Parking Area	Construction Cost		Building Cost	Parking Cost	Cost Increase
				Building	Parking			
	Space/1,000 sq ft	Sq ft	Sq ft	$/sq ft	$/sq ft	$	$	%
	(1)	(2)	(3)=(1)×(2)×0.33	(4)	(5)	(6)=(2)×(4)	(7)=(3)×(5)	(8)=(7)/(6)
Los Angeles	4.0	1,000	1,320	153	108	153,000	142,000	93
Phoenix	3.3	1,000	1,100	135	80	135,000	88,000	65
Honolulu	3.3	1,000	1,100	255	145	255,000	160,000	63
Denver	2.5	1,000	825	105	78	105,000	64,000	61
Las Vegas	4.0	1,000	1,320	298	105	298,000	139,000	47
Portland	2.0	1,000	660	153	105	153,000	69,000	45
Seattle	2.0	1,000	660	158	105	158,000	69,000	44
New York	1.0	1,000	330	195	105	195,000	35,000	18
Average	2.8	1,000	914	181	104	181,500	95,750	53

Source: Rider Levett Bucknall, *Quarterly Construction Cost Report, Third Quarter* (2012).

Table 5. The Cost of Parking Requirements for Shopping Centers — Aboveground Parking Structure.

City	Parking Requirement	Building Area	Parking Area	Construction Cost		Building Cost	Parking Cost	Cost Increase
				Building	Parking			
	Space/1,000 sq ft	Sq ft	Sq ft	$/sq ft	$/sq ft	$	$	%
	(1)	(2)	(3)=(1)×(2)×0.33	(4)	(5)	(6)=(2)×(4)	(7)=(3)×(5)	(8)=(7)/(6)
Los Angeles	4	1,000	1,320	153	78	1,53,000	1,02,000	67
Phoenix	3.3	1,000	1,100	135	53	1,35,000	58,000	43
Denver	2.5	1,000	825	105	55	1,05,000	45,000	43
Honolulu	3.3	1,000	1,100	255	83	2,55,000	91,000	36
Portland	2.0	1,000	660	153	75	1,53,000	50,000	33
Seattle	2.0	1,000	660	158	75	1,58,000	50,000	32
Las Vegas	4.0	1,000	1,320	298	68	2,98,000	89,000	30
New York	1.0	1,000	330	195	85	1,95,000	28,000	14
Average	2.8	1,000	914	181	71	1,81,500	64,125	37

Source: Rider Levett Bucknall, *Quarterly Construction Cost Report, Third Quarter* (2012).

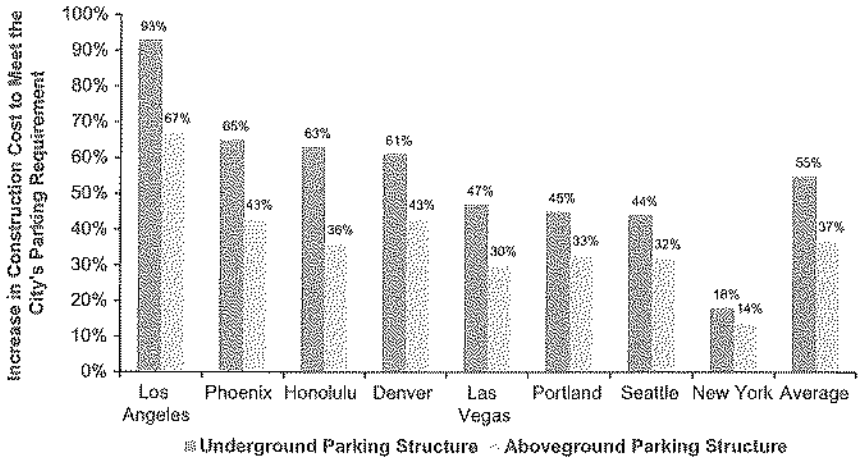


Fig. 3. How Parking Requirements Increase the Cost of Constructing Shopping Centers.

Cutter and Franco (Table 10) also estimated how much an additional parking space adds to a building's value. For retail service buildings with high parking requirements such as restaurants, the last parking space cost $14,700 more than it added to the building's value.[7] High parking requirements thus force developers to provide parking spaces that lose money. In effect, parking requirements tax buildings to subsidize parking. Cutter and Franco (2012, p. 919) conclude, "minimum parking requirements lower site density, increase land consumption, oversupply parking and reduce profits per unit of covered land."

THE COST OF PARKING REQUIREMENTS FOR APARTMENT BUILDINGS

City planners cannot predict how many parking spaces an apartment needs any more than they can predict how many cars a family needs. But the parking requirements for apartments help to predict how many cars a family will own. Even when planners try to measure the "need" for parking by observing the number of cars parked at existing buildings, they often require too much. Seattle's Right Size Parking Project, for instance, surveyed occupancy at over 200 apartment buildings in the region in 2012. The parking requirements in suburban Seattle were, on average, 0.4 spaces

per dwelling unit greater than the observed parking occupancy (King County Metro, 2013, p. 11). Table 1 shows that underground parking costs $35,000 per space in Seattle, and aboveground parking costs $25,000 per space. These figures suggest that the parking requirements in suburban Seattle require developers to spend between $10,000 (0.4 × $25,000) and $14,000 (0.4 × $35,000) per apartment to provide unused parking spaces.

The typical requirement of two spaces per apartment forces developers to spend at least $70,000 per dwelling unit for parking if the spaces are underground, or $50,000 per dwelling unit if the spaces are in an aboveground structure. These estimates refer to the *average* cost of building a parking space. The *marginal* cost of a parking space, however, can be far higher due to natural break points in the cost of building a parking structure. For example, a dramatic break point occurs with the construction of a second level of underground parking because it requires removing several spaces on the first level to provide a ramp to the lower level. Therefore, the marginal cost of the first space on the second level can be far higher than the average cost of the spaces on the first level. This high marginal cost of excavating a second parking level severely limits what developers can build on a site.

To demonstrate how break points in the cost of building a garage affect development decisions, Fig. 4 shows a four-story apartment building in Los Angeles on a typical lot that is 50 feet (15 meters) wide and 130 feet

Fig. 4. Seven-Unit Apartment Building on a 50 × 130 Foot Lot (47 Units per Acre).

Fig. 5. Tandem Compact Parking Space in Underground Garage.

(40 meters) deep. The city's R3 zoning allows eight apartments on the site, and the city's parking requirement is 2.25 spaces per unit. Eight apartments would therefore require 18 parking spaces (8×2.25), but only 16 spaces could be squeezed onto one level of underground parking (Fig. 5 shows how tightly the spaces are packed).[8] In response, the developer built only seven apartments on the site, rather than excavate a second level of parking to provide two additional spaces for the eighth apartment.

In this case, the parking requirement, not the density allowed by zoning, constrained the number of apartments. If the city had allowed the developer to provide only two parking spaces per apartment, the developer could have built eight apartments and 16 parking spaces. The prohibitively high *marginal* cost of two more spaces on a second underground level, however, reduced the feasible number of dwellings from eight to seven, or by 13 percent.

Repealing or reducing a city's parking requirement does *not* mean that developers won't provide parking. Even without parking requirements, the developer in the example above would probably have built a garage with 16 spaces, because the site told the developer that 16 spaces were feasible. With parking requirements, however, the garage told the developer that

only seven apartments were feasible. More parking for cars means less housing for people.

By increasing the cost of development, parking requirements can reduce the supply and increase the price of real estate in two ways. First, parking requirements can reduce the density of what gets built, as in the 13 percent reduction in apartments in the example above. Parking requirements increase the density of cars but reduce the density of people (Manville, Beata, & Shoup, 2013). Because parking requirements reduce the supply of apartments, they increase the price of housing. On some days, planners think about housing affordability, but on most days they think about parking and forget about housing affordability.

Second, parking requirements not only reduce the density on sites that are developed, but also reduce the number of sites that are developed. If the required parking spaces increase the cost of constructing a building by more than they increase the market value of the building, they will reduce the residual value of land. Residual land value is defined as the market value of the most profitable development that could be constructed on a site minus the cost of constructing it.[9] For example, if the best choice for development on a site would cost $750,000 to construct and would have a market value of $1 million, the residual value for the land is $250,000. If $250,000 is not enough to pay for buying and demolishing an existing building on the site, redevelopment won't happen. The residual land value of a site for redevelopment must be greater than the value of the existing building on the site before a developer can buy the building, clear the site, and make a profit on a new development. Therefore, if minimum parking requirements reduce residual land values, they make redevelopment less likely.

In their analysis of parking requirements for retail services, Cutter and Franco (2012) found that the last parking space adds $14,700 more to a building's cost than it adds to the building's value. Requiring one more parking space at a proposed restaurant thus reduces the residual land value of the site by $14,700. Where parking requirements reduce residual land values, they will reduce infill redevelopment. This reduction in the supply of real estate drives up the price of everything except parking and shifts the cost of parking from drivers onto all economic activity in the city.

THE COST OF PARKING REQUIREMENTS FOR HISTORIC BUILDINGS

Cornell professor Michael Manville (2013) showed how parking requirements can reduce the supply of housing by preventing the reuse of historic

buildings. He examined what happened after Los Angeles adopted its Adaptive Reuse Ordinance (ARO), which allows developers to convert economically distressed or historically significant office buildings into new residential units – with no new parking spaces required.

Parking requirements often make reusing historic buildings difficult or impossible, because old buildings rarely have all the parking spaces cities require for new uses. Downtown Los Angeles is a prime example. It has the nation's largest collection of intact office buildings built between 1900 and 1930. Starting in the 1960s, the city's urban renewal program created a new office district on Bunker Hill and left many splendid Art Deco and Beaux Arts buildings in the old office district on Spring Street (once known as the Wall Street of the West) vacant except for retail uses on the ground floor.

Before Los Angeles adopted the ARO in 1999, the city required at least two parking spaces per condominium unit in downtown. In the 30 years between 1970 and 2000, only 4,300 housing units were added in downtown. In the nine years after the ARO was adopted, developers created 7,300 new housing units in 56 historic office buildings. All these office buildings had been vacant for at least five years, and many had been vacant much longer.

Developers provided, on average, only 1.3 spaces per apartment, with 0.9 spaces on-site and 0.4 off-site, often by renting spaces in nearby lots or garages. If the city had not adopted the ARO, it would have required at least two *on-site* spaces for every condo unit, or more than twice as many as developers provided. Deregulating the quantity and the location of parking for the new housing was a key factor in restoring and converting the office buildings.

Removing the parking requirements also produced other benefits. It allowed the restoration and conversion of many historic buildings that had been vacant for years and might have been demolished if parking requirements had been maintained. Historic buildings are a scarce resource in a city, and the evidence shows that parking requirements stood in the way of preservation. Not only did removing the parking requirements preserve individual buildings, it also helped revitalize an entire historic district. The ARO applied only to downtown when it was adopted in 1999, but its benefits were so quickly apparent that the city council extended the ARO to several other historic parts of the city in 2003.

Parking requirements prevent many good things from happening in cities, but usually we cannot see the good things that parking requirements are preventing. Nevertheless, the beautifully restored buildings on Spring Street unveil what parking requirements had been holding back. Many wonderful buildings were restored and reinhabited only after the city removed the minimum parking requirements for these buildings (Fig. 6).

Fig. 6. Office Building Converted to Housing with No New Parking.

Cities also discourage historic preservation if they require additional parking when a rental apartment building is converted to condominium ownership. Los Angeles requires at least 1.5 spaces per unit before an apartment building can be converted to owner-occupancy (Shoup, 2011, p. 157). Because most old buildings do not have 1.5 parking spaces per apartment, the solution is often to reduce the number of apartments to match the number of parking spaces available, either by combining small apartments to create fewer but larger and more expensive ones, or by demolishing some apartments and converting the land to parking. More commonly, developers demolish the rental apartment house and build a new condominium with all the required parking (see Fig. 4). Many residents of historic buildings would prefer to own rather than to rent

their apartments, but parking requirements preclude this opportunity. In practice, the law discriminates against tenants who would like to own their housing but have only one car.

CIRCULAR PARKING REQUIREMENTS

Off-street parking requirements are a strong planning intervention based on scant, unreliable evidence. Because planners do not know how many cars every family needs, they cannot know how many parking spaces every residence needs. And because the number of available parking spaces affects the number of cars a family will own, the number of cars a family owns cannot predict the number of parking spaces to require. Minimum parking requirements increase the demand for cars, and then the number of cars increases the minimum parking requirements. It's like requiring closet space in every residence based on how much stuff planners think people will want to store, and then using the amount of stuff stored in the required closets to set the minimum closet requirements.

Because city planners and elected officials don't know how much it costs to construct a parking space, they can't take this cost into consideration when deciding how many spaces to require. Instead, they often use the occupancy of parking spaces at existing buildings to estimate the "need" for parking spaces at new buildings, as though the cost of a space was irrelevant. Since most drivers park free at existing buildings, parking requirements based on existing occupancy at sites with free parking will therefore reflect the demand for *free* parking, no matter how much the required spaces cost. To use a familiar analogy, if pizza were free, would there ever be enough pizza? Charging drivers a price for parking that is high enough to cover the cost of constructing and operating a garage would reduce the occupancy rates that planners use to estimate parking requirements.

PUTTING A CAP ON PARKING REQUIREMENTS

I thought the time to reform parking requirements had finally arrived when Assembly Bill 904 (The Sustainable Minimum Parking Requirements Act of 2012) was introduced in the California Legislature. AB 904 would set an upper limit on how much parking cities can require in transit-rich

districts: no more than one space per dwelling unit or two spaces per 1,000 square feet of commercial space. The bill defined these districts as areas within a quarter-mile of transit lines that run every 15 minutes or better. AB 904 would limit how much parking cities can require, but it would not limit the parking supply because developers can always provide more than the required number of spaces if they think demand justifies the cost.

Minimum Parking Requirements in Transit-Rich Areas

Why would state officials want to limit parking requirements in areas with good transit service? The federal and state governments give cities billions of dollars every year to build and operate mass transit systems, yet most cities require ample parking based on the assumption that almost everyone will drive almost everywhere. Los Angeles, for example, is building its "subway to the sea" under Wilshire Boulevard, which already has the city's most frequent bus service. Nevertheless, along parts of Wilshire, the city requires at least 2.5 parking spaces for each dwelling unit, regardless of the number of habitable rooms.[10] If every one-bedroom apartment has 2.5 parking spaces, how many residents will ride public transit?

Los Angeles also requires *free* off-street parking along parts of Wilshire Boulevard: "For office and other commercial uses there shall be at least three parking spaces provided for each 1,000 square feet of gross floor area available at no charge to all patrons and employees of those uses."[11] If all commuters and shoppers can park free, fewer will leave their cars at home and ride the bus or subway to work or shop on Wilshire.

Close to Wilshire Boulevard in Westwood, 20 public transit lines serve the UCLA campus, with 119 buses per hour arriving during the morning peak (7—9 am). Nevertheless, across the street from campus, Los Angeles requires 3.5 parking spaces for every apartment that contains more than four habitable rooms, and even a kitchen counts as a habitable room.

On another stretch of Wilshire, Beverly Hills requires 22 parking spaces per 1,000 square feet for restaurants, which means the parking lot is seven times larger than the restaurant. Public transit in this parking environment is as superfluous as a Gideon Bible at the Ritz.

The Rationale for a Statewide Limit on Minimum Parking Requirements

Cities get money from states and the federal government to build transit systems, and then require developers to provide parking spaces that undermine

these transit systems. We would own fewer cars, and use them more sparingly, if drivers instead paid prices for parking that covered the cost of constructing the parking spaces. Parking requirements are policy choices, and choices have consequences.

The rationale for a statewide limit on parking requirements in transit-rich districts is the same as the rationale for most city planning: the uncoordinated actions of many individuals can add up to a collective result that most people don't like. In this case, the uncoordinated parking requirements of many cities can add up to an asphalt wasteland that blights the environment and compels people to drive. Reducing the parking requirements in transit-rich neighborhoods can reduce this blight by making redevelopment at higher density more feasible near transit stations.

The United Kingdom's guidance on parking policy provides a precedent for national action to manage local parking requirements. In 2001, the U.K. Department for Communities and Local Government (2001, pp. 51–52) published a guidance document stating that cities should "not require developers to provide more spaces than they themselves wish. ... There should be no minimum [parking] standards for development, other than parking for disabled people." Following this guidance, the Greater London Authority (2004) required its 33 boroughs to set a maximum number of parking spaces allowed, with no minimum number required. For apartment buildings that are near public transit or are within a ten-minute walk of a town center, for example, the maximum number of parking spaces allowed is now one space per dwelling unit.

Zhan Guo and Shuai Ren at New York University studied the results of London's shift from minimum parking requirements with no maximum, to maximum parking limits with no minimum. Using a sample of developments completed before and after the reform, they found that the supply of parking after the reform was only 68 percent of the maximum allowed, and only 52 percent of the previous minimum required. If, after the reform, developers provided only 52 percent of the parking spaces previously required, and rarely provided as many parking spaces as allowed, the result implies that the previous minimum parking requirement almost *doubled* the number of parking spaces that developers would have voluntarily provided on their own. Summarizing their results, Guo and Ren (2013, p. 1193) say,

> It is clear that, with the minimum standard but no maximum, most developments do not provide more than the minimum required. With the maximum standard but no minimum, most developments provide less than the maximum allowed.

They concluded that removing the minimum parking requirement caused 98 percent of the reduction in parking spaces, while imposing the maximum standard caused only 2 percent.

London's *maximum* of one parking space per unit everywhere is the same as California's proposed cap on *minimum* parking requirements in transit-rich districts. And even if California does limit how much parking cities can require, developers could always provide more.

National and regional governments guide local parking policies in the United Kingdom, but planning for parking is solely a local responsibility in the United States. As a result, American parking policies are parochial. Because sales taxes are an important source of local public revenue in California, cities are under terrific pressure to attract retail sales. Fierce competition for sales tax revenue puts cities in a race to offer ample free parking for all potential customers. This battle is an expensive negative-sum game within a region because more parking everywhere consumes valuable land and capital, without increasing total regional sales.

Beyond competing for sales tax revenue, cities have another incentive to set high parking requirements. Everyone wants to park free, and parking requirements allow elected officials to provide free parking at someone else's expense. The required parking spaces cost a lot, but the cost is hidden in higher prices for everything else.

Opposition from the California Chapter of the American Planning Association

To my dismay, the California Chapter of the American Planning Association lobbied against the proposed legislation. The California APA (2012, p. 1) argued that AB 904 "would restrict local agencies' ability to require parking in excess of statewide ratios for transit intensive areas unless the local agency makes certain findings and adopts an ordinance to opt out of the requirement."

According to the California APA, all cities should have the right to require abundant parking in transit-rich districts without presenting any findings to show that a high parking requirement is justified. That is, cities can tell property owners what to do, but the state cannot tell cities what to do. The California APA wants cities to require parking without being subject to any statewide planning.

City planners must, of course, take direction from local elected officials, but the American Planning Association represents the planning profession,

not cities. AB 904 gave the planning profession an opportunity to recommend a reform that would coordinate parking requirements with public transportation, but instead the California APA insisted on retaining local control over parking requirements regardless of any wider concerns.[12]

Planning for parking is an ad hoc skill learned on the job, and it is more a political than a professional or technical activity. Most city planning textbooks do not even mention minimum parking requirements. Despite their lack of professional training, planners in every city must set parking requirements for every land use, and they have adopted a veneer of professional language to justify the requirements. Simply put, planners are winging it when it comes to parking requirements, which are, at best, the outcome of simple tinkering. City planners do not have the omniscience to predict the need for parking at every restaurant, apartment house, church, and nail salon. Instead of reasoning about parking requirements, planners usually rationalize them. Minimum parking requirements result from complicated political and economic forces, but city planners enable these requirements and even oppose efforts to reform them. The public bears the high cost of this pseudoscience.

Suppose the automobile and oil industries have asked you to devise planning policies that will increase the demand for cars and fuel. Consider three promising policies that will make cars essential for most trips. First, segregating land uses (housing here, jobs there, and shopping somewhere else) will increase travel demand. Second, limiting development density will spread the city and further increase travel demand. Third, minimum parking requirements will ensure that drivers can park free at the beginning and end of almost every automobile trip. American cities have unwisely embraced each of these three planning policies.[13] Zoning ordinances that segregate land uses, limit density, and require parking will create sprawled, drivable cities and prohibit compact, walkable neighborhoods. Urban historians often say that cars have changed the city, but urban planning has also changed the city to favor cars.

MINIMAL PARKING REQUIREMENTS

Many people believe that America freely chose its love affair with the car, but I think there was an arranged marriage. By recommending minimum parking requirements in zoning ordinances, the planning profession was both a matchmaker and a leading member of the wedding party.

Unfortunately, however, planners failed to provide a good prenuptial agreement. Now, city planners should become marriage counselors or divorce lawyers. By working to reform minimum parking requirements, planners can help to secure a fair and friendly settlement between people and cars where the relationship no longer works well.

Minimum parking requirements limit urban development. They often force developers to provide more parking than necessary, or to construct smaller buildings than the zoning allows. Parking requirements promote an unsustainable city. If cities require ample off-street parking everywhere, most people will continue to drive everywhere, even if Santa Claus delivers a great transit system. Cities get the traffic they plan for and the behavior they subsidize.

The California Legislature has delayed action on the bill to cap parking requirements in transit-rich areas. Nevertheless, the proposal has already fomented debate within the planning profession. Should cities have minimum parking requirements with no maximums, like Los Angeles? Or should they have maximum parking limits with no minimums, like London? Or neither? And should state or national governments limit how much parking cities can require? Parking is an important policy issue and not merely a regulatory detail.

City planners should begin to consider minimal, not minimum, parking requirements. "Minimal" means barely adequate, or the smallest possible number, depending on the context. A minimal parking requirement would thus require planners to estimate an adequate number of parking spaces, after taking all the costs into account. For example, can the adjacent roads handle all the additional traffic caused by the cars that will park in the required spaces? Can the city's air safely absorb all the additional vehicle emissions? Can the earth's atmosphere safely absorb all the additional carbon emissions? How will the required parking spaces increase the cost of housing and all other real estate? And who will pay for all the required parking spaces?

If they are faced with the impossible task of calculating the costs and benefits of parking spaces required for every building in every location, planners may appreciate the idea of going Dutch on parking: Each driver can pay for his or her own parking, and planners should abandon the idea of parking requirements. If you pay for your parking and I pay for mine, someone who does not own a car will not pay for parking.

Most cities will not want to abandon parking requirements altogether, but perhaps they can start by reducing the minimum number of spaces required until they reach a minimal number that seems reasonable.

Eventually, they might reinterpret this to mean the maximum number of spaces allowed, not the minimum number required. With only a slight change in terminology, cities can require developers to provide no more than an adequate number of parking spaces. But as Guo and Ren found in London, simply removing the minimum parking requirements will greatly reduce the supply of new parking spaces, even without imposing any maximum parking limit. Removing a minimum parking requirement can be far more important than imposing a maximum parking limit, and politically easier. If cities do impose maximum parking limits, however, they can offer developers the option to pay per-space fees if they want to exceed the maximum number of spaces allowed, just as cities already offer developers the option to pay in-lieu fees if they want to provide fewer than the minimum number of parking spaces required.

CONCLUSION

I hope the information I have provided about the high cost of minimum parking requirements will encourage transportation and land use planners to examine how these requirements affect cities, the economy, and the environment. The politics that produce minimum parking requirements are understandable, but their high costs are indefensible. Irrefutable evidence on the health cost of smoking eventually led many people to kick their addiction to tobacco. I hope evidence about the high cost of required parking spaces will eventually lead cities to kick their addiction to minimum parking requirements.

NOTES

1. Rider Levett Bucknall, *Quarterly Construction Report, Third Quarter* (2012).
2. Pasqual and Riera (2005) explain the theory of underground land values.
3. These estimates probably come from building a garage with several hundred spaces, taking advantage of economies of scale in construction. Where parking requirements mandate only 10 or 20 spaces, there will be no economies of scale and the spaces will be much more expensive.
4. See Tables 723 and 1096 in the 2012 Statistical Abstract of the United States.
5. The other four cities exempt small buildings from parking requirements. Washington, DC, for example, exempts the first 3,000 square feet of building area from parking requirements; Chicago exempts the first 4,000 square feet; and San Francisco exempts the first 5,000 square feet.

6. RLB provides cost estimates for two categories of office buildings, Prime (the most expensive) and Grade A or Secondary. I have used the cost estimates for Grade A office buildings.

7. Shoup (2011, pp. 698–699) uses the data in Cutter and Franco's Table 10 to calculate the marginal value and marginal cost of the required parking spaces.

8. Shoup (2008) explains this example in greater detail.

9. Adams (1994, pp. 26–27) explains residual land values. Shoup (1970) explains the optimal timing of redevelopment.

10. City of Los Angeles, Park Mile Specific Plan (Ordinance No. 162530), Section 6.B.1.

11. City of Los Angeles, Park Mile Specific Plan (Ordinance No. 162530), Section 6.B.2.

12. Letters about AB 904 from mayors, planning academics, planning practitioners, and the California Chapter of the American Planning Association are available at http://shoup.bol.ucla.edu/LettersAboutAssemblyBill904.pdf

13. Cities have also adopted other policies that increase the demand for cars and fuel, such as free on-street parking and street-width requirements. For example, Section 1805 of the California Streets and Highways Code states, "The width of all city streets, except state highways, bridges, alleys, and trails, shall be at least 40 feet." On a 40-foot wide residential street, with two 12-foot-wide travel lanes and two 8-foot-wide parking lanes, curb parking takes up 40 percent of the roadspace. The U.S. Department of Commerce estimates that the value of roads is 36 percent of the value of all state and local public infrastructure, which also includes schools, sewers, water supply, residential buildings, equipment, hospitals, and parks (Shoup, 2011, p. 206). Because curb parking occupies a large share of road space, it is a substantial share of all state and local public infrastructure. Free curb parking may be the most costly subsidy that American cities provide for most of their citizens. Guo and Schloeter (2013) explain how minimum street-width requirements are a de facto on-street free parking policy.

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RLB | Rider Levett Bucknall

USA REPORT

QUARTERLY CONSTRUCTION COST REPORT

THIRD QUARTER 2015

USA REPORT

AT A GLANCE

The figures in this edition of Rider Levett Bucknall's Quarterly Cost Report paint a variety of scenes.

The scene for the general economy shows GDP at a robust 3.7%, unemployment steady at 5.5% and general economy-wide inflation (as measured by the Consumer Price Index) reaching 1.06% (4.24% annualized). Guided by these and other positive economic signs, the US Federal Reserve Bank had been priming expectations towards a rise in interest rates but this was set back by the emergence of problems in the Chinese economy prompting the IMF and others to 'warn' the Fed about making a 'premature' rate increase. As a result, in mid-September, the Fed 'folded' and left interest rates unchanged. In summary, for the general economy, positive news was trampled.

The scene for the construction industry also remains positive. According to the AIA, July's Architectural Billing Index score of 55.7 "...marks the third consecutive month of growth, breaking the recent ABI pattern of two months of progress after two months of contractions...". Construction Unemployment has fallen to 6.3% (still higher than the general rate of unemployment); Construction Put-In-Place jumped by nearly 12% between the 3rd Quarter 2014 and the 2nd Quarter 2015 and; cost escalation nationally sat at 3.56% for the past year.

Cost escalation in Honolulu in the 2nd Quarter hit 2.76% (11.0% annualized) leading its construction costs to eclipse those of New York City and making it the most expensive city to build in the USA.

PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE

The Portland International Jetport, located in Portland, Maine, has constructed a new terminal building. The terminal expansion was designed to demonstrate that a publicly-owned building can be sustainable, energy efficient and aesthetically striking. The facility includes new aircraft gates, a ticketing hall, a baggage handling area, security-screening checkpoints, departure lounges, a concession, and a food court.

Advocating sustainability and energy efficiency in their development plan, Portland International Jetport has been named the second airport in the United States to achieve a LEED Gold certification.

Rider Levett Bucknall provided construction cost management services to Gensler, the architect for the project.

USA REPORT

NATIONAL CONSTRUCTION COST INDEX

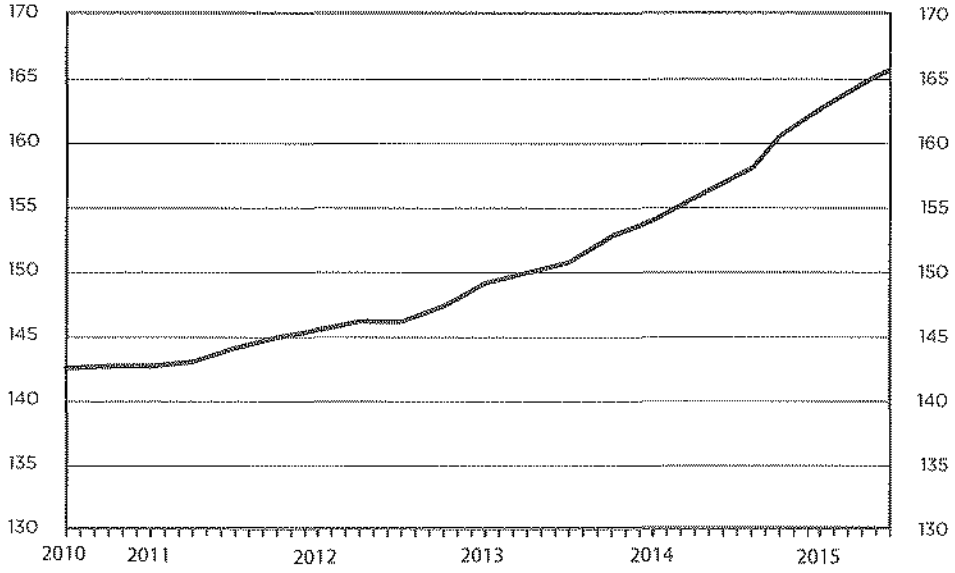
The National Construction Cost Index shows the changing cost of construction between July 2010 and July 2015, relative to a base of 100 in April 2001. Index recalibrated as of April 2011.

Date	Cost Index
July 2010	142.58
October 2010	142.60
January 2011	142.77
April 2011	143.42
July 2011	144.53
October 2011	145.29
January 2012	145.73
April 2012	146.35
July 2012	146.67
October 2012	147.74
January 2013	149.19
April 2013	150.75
July 2013	151.89
October 2013	153.09
January 2014	154.56
April 2014	156.33
July 2014	158.48
October 2014	161.11
January 2015	162.98
April 2015	164.96
July 2015	166.85

Welcome to the third quarter 2015 issue of Rider Levett Bucknall's Quarterly Cost Reports! This issue contains data current to July 1, 2015.

According to the U.S. Department of Commerce, construction put-in-place during June 2015 was estimated at a seasonally adjusted annual rate of $1,064.6 billion, which is 0.1% above the revised May estimate of $1,063.5 billion. The June 2015 figure is 12.0% above the June 2014 estimate of $950.3 billion. The value of construction for the first six months of this year was $482.7 billion, 8.0% above the same period in 2014.

NATIONAL CONSTRUCTION COST INDEX



KEY UNITED STATES STATISTICS

	Q3 2014	Q4 2014	Q1 2015	Q2 2015
Gross Domestic Product (GDP)*	3.5%	2.2%	0.2%	3.7%
Consumer Price Index (CPI)	238.0	234.8	236.1	238.6
Inflation (Quarter)			0.55%	1.07%
Architectural Billings Index (ABI)	55.2	52.2	51.7	55.7
Construction Put-in-Place (B)	$950.9	$982.1	$966.6	$1,064.6
Unemployment	6.1%	5.6%	5.5%	5.5%
Construction Unemployment	7.0%	8.3%	9.5%	6.3%

GDP represented in percent change from the preceding quarter, seasonally adjusted at annual rates. CPI quarterly figures represent the monthly value at the end of the quarter. Inflation rates represent the total price of inflation from the previous quarter, based on the change in the Consumer Price Index. ABI is derived from a monthly American Institute of Architects survey of architectural firms of their work on the boards, reported at the end of the period. Construction Put-in-Place figures represent total value of construction dollars in billions spent at a seasonally adjusted annual rate taken at the end of each quarter. General Unemployment rates are based on the total population 16 years and older. Construction Unemployment rates represent only the percent of experienced private wage and salary workers in the construction industry 16 years and older. Unemployment rates are seasonally adjusted, reported at the end of the period.

Sources: U.S. Bureau of Labor Statistics, Bureau of Economic Analysis, American Institute of Architects

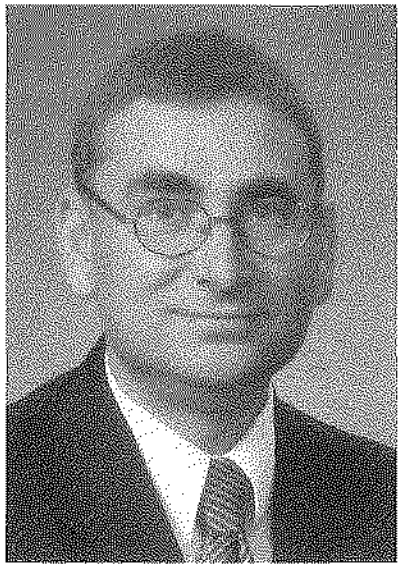
** Adjustments made to GDP based on amended changes from the Bureau of Economic Analysis.*

USA REPORT

INDICATIVE CONSTRUCTION COSTS

	OFFICES				RETAIL SHOPPING				HOTELS				HOSPITAL	
	PRIME		SECONDARY		CENTER		STRIP		5 STAR		3 STAR		GENERAL	
LOCATION	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
Boston	200	280	175	245	120	210	90	145	250	400	160	250	375	550
Chicago	230	360	120	180	115	210	80	130	250	450	120	210	310	580
Denver	140	225	100	150	80	130	65	125	185	280	105	165	335	390
Honolulu	255	470	215	355	185	440	155	385	460	665	290	485	420	680
Las Vegas	140	285	105	190	115	480	65	145	325	465	120	225	285	455
Los Angeles	200	300	140	210	125	280	100	160	300	450	200	275	400	600
New York	205	350	180	270	140	250	115	160	320	475	185	265	450	600
Phoenix	140	240	100	160	105	165	70	125	230	400	140	180	300	450
Portland	165	220	115	170	110	220	90	130	175	265	130	170	370	480
San Francisco	220	330	160	240	150	280	130	185	300	470	220	290	400	600
Seattle	165	205	115	160	115	200	95	135	185	275	140	180	320	435
Washington DC	175	240	130	185	95	190	75	135	230	375	150	230	350	500

PHILIP MATHUR REJOINS RIDER LEVETT BUCKNALL



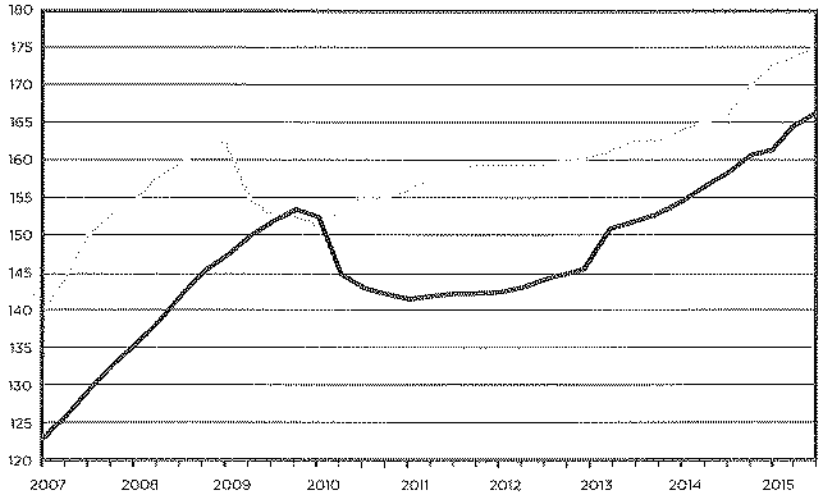
Rider Levett Bucknall is pleased to announce that Philip Mathur, Associate Principal, has re-joined the firm and will be leading the Los Angeles, California office.

Philip brings more than 25 years of national and international experience to the firm. Having worked in the Los Angeles market for over 16 years, Philip also brings extensive market knowledge and experience to the team. As a member of the Royal Institution of Chartered Surveyors (MRICS), Philip is skillful at managing and facilitating all facets of cost, project budget control, and negotiating contracts on projects of varying sizes and procurement methods. Philip has worked within various sectors which range from hospitality, residential, and mixed-use to cultural, education, healthcare, and federal projects.

The data in the chart below represents estimates of current building costs in each respective market. Costs may vary as a consequence of factors such as site conditions, climatic conditions, standards of specification, market conditions, etc. Values represent hard construction costs based on U.S. dollars per square foot of gross floor area.

INDUSTRIAL		PARKING				RESIDENTIAL				EDUCATION					
WAREHOUSE		GROUND		BASEMENT		MULTI-FAMILY		SINGLE FAMILY		ELEMENTARY		HIGH SCHOOL		UNIVERSITY	
LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
70	100	60	90	80	110	135	220	165	325	220	300	240	350	275	400
70	130	65	110	90	130	130	210	120	325	190	350	190	370	250	375
65	110	40	70	60	95	70	190	60	350	125	160	145	215	185	305
125	200	85	125	120	235	170	395	250	680	300	425	360	540	395	640
50	100	50	85	60	150	70	400	90	350	180	315	200	455	235	455
95	160	95	115	110	155	150	245	150	310	310	410	325	445	340	490
90	130	65	105	85	125	140	250	175	350	190	340	220	375	275	400
55	100	40	65	60	100	90	185	100	400	150	200	170	250	210	375
75	130	70	90	100	140	130	220	110	260	220	275	230	290	270	390
95	160	100	130	120	165	160	260	165	350	320	420	350	500	340	490
75	110	65	85	85	125	120	235	100	235	205	250	230	300	265	395
70	100	55	80	75	100	100	185	120	250	190	250	220	275	250	375

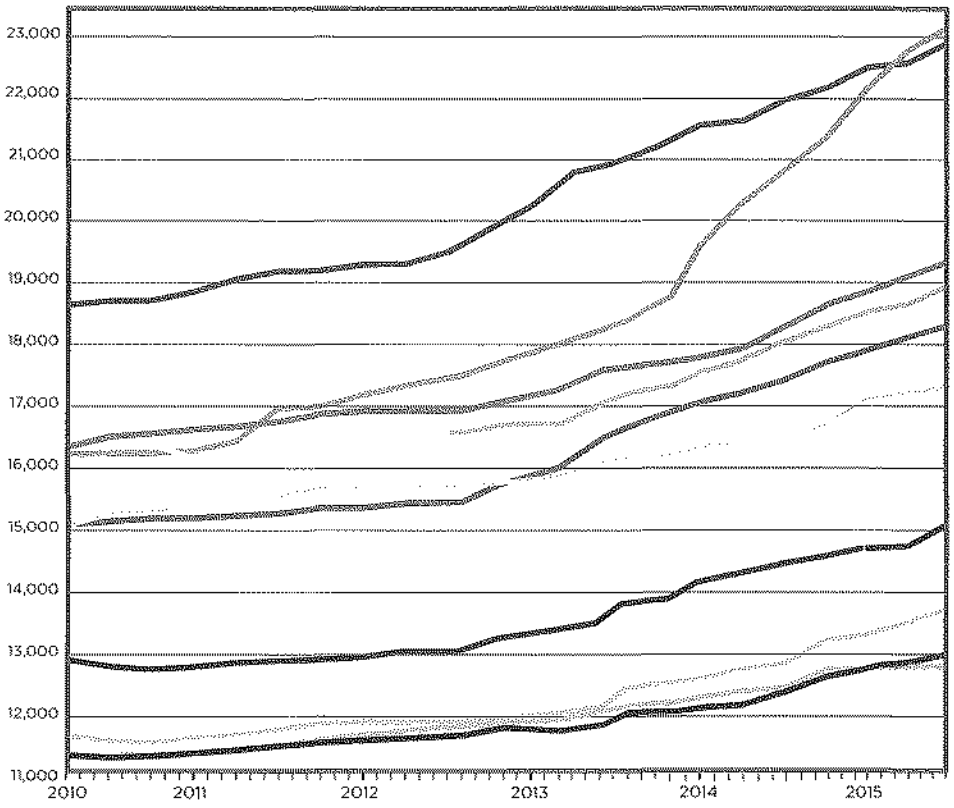
INFLATION INDEX COMPARISON LOS ANGELES VS. NATIONAL



The construction cost index, provided by quarter, indicates the change in the cost of construction, relative to a base of 100. The chart above compares the national construction cost index (blue) to that of the Los Angeles market (red).

USA REPORT

COMPARATIVE COST INDEX



Each quarter we look at the comparative cost of construction in 12 US cities, indexing them to show how costs are changing in each city in particular, and against the costs in the other 11 locations. You will be able to find this information in the graph titled *Comparative Cost Index (above)* and in the *Cost and Change Summary (right)*.

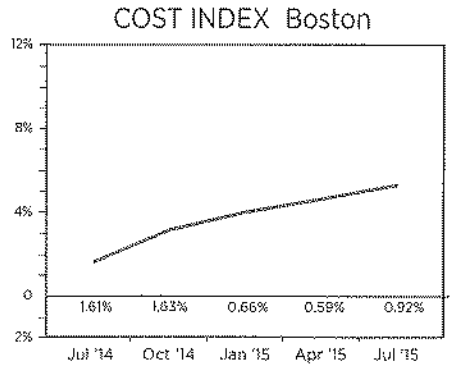
Our Comparative Cost Index tracks the 'true' bid cost of construction, which includes, in addition to costs of labor and materials, general contractor and sub-contractor overhead costs and fees (profit). The index also includes applicable sales/use taxes that 'standard' construction contracts attract. In a 'boom,' construction costs typically increase more rapidly than the net cost of labor and materials. This happens as the overhead levels and profit margins are increased in response to the increasing demand. Similarly, in a 'bust', construction cost increases are dampened (or may even be reversed) due to reductions in overheads and profit margins.

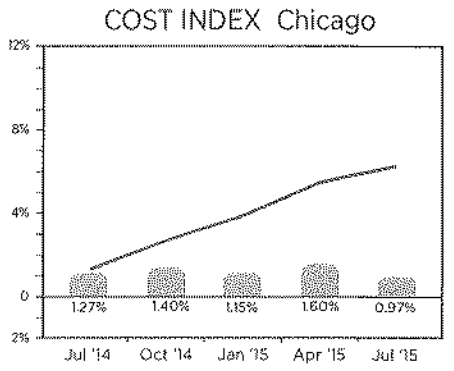
City	April 2015	July 2015	% Change
Boston	19,218	19,394	0.92%
Chicago	18,799	18,983	0.97%
Denver	12,852	13,000	1.15%
Honolulu	22,762	23,390	2.76%
Las Vegas	12,602	12,720	0.94%
Los Angeles	17,178	17,351	1.01%
New York	22,629	22,809	0.80%
Phoenix	12,834	12,947	0.88%
Portland	13,520	13,638	0.87%
San Francisco	19,089	19,311	1.16%
Seattle	14,926	15,113	1.25%
Washington, DC	18,165	18,359	1.07%

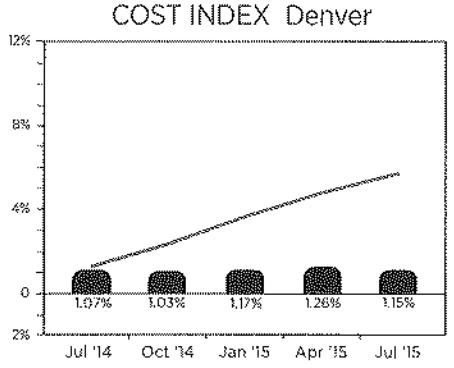
Our research suggests that between April 1, 2015 and July 1, 2015 the national average increase in construction cost was approximately 1.15%. Honolulu again experienced the greatest increase showing inflation of almost 2.8% for the period. All other North American locations experienced inflation between 0.8% and 1.25% for the quarter.

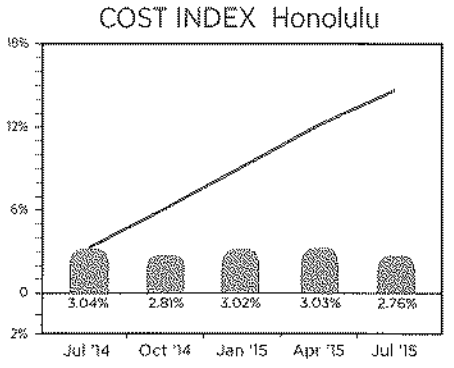
The following escalation charts track changes in the cost of construction each quarter in many of the cities where Rider Levett Bucknall offices are located. Each chart illustrates the percentage change per period and the cumulative percentage change throughout the charted timeline.

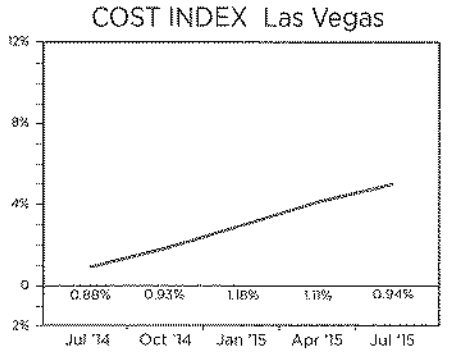
Percentage change per quarter Cumulative percentage change for the period shown

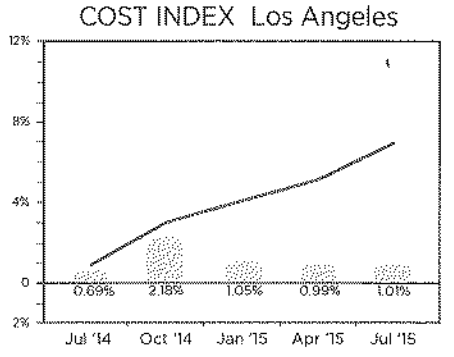






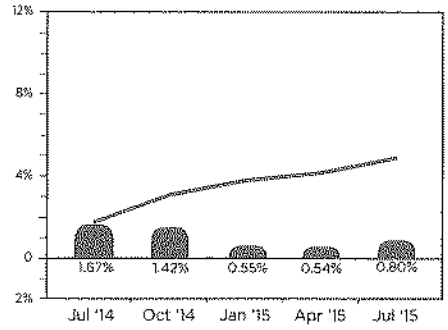




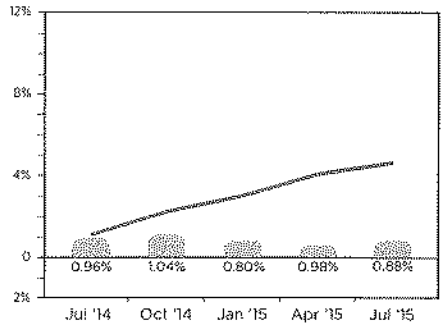


USA REPORT

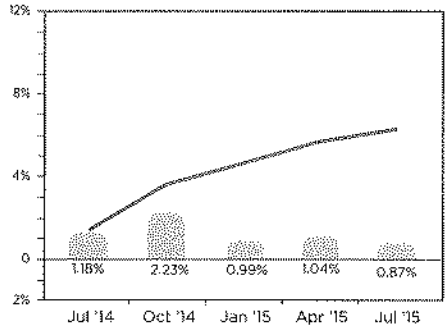
COST INDEX New York



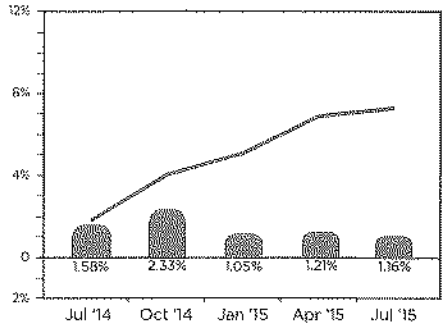
COST INDEX Phoenix



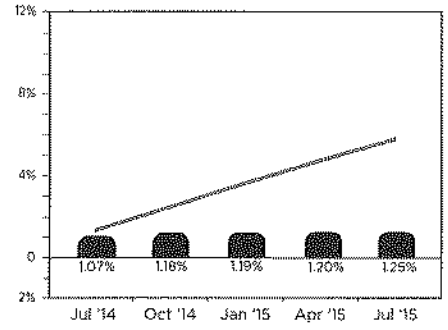
COST INDEX Portland



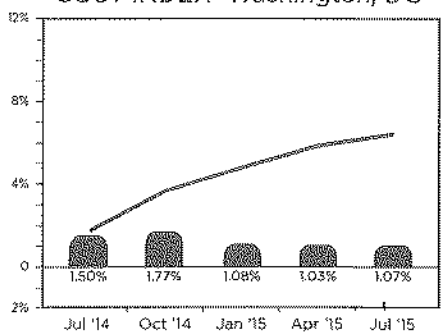
COST INDEX San Francisco



COST INDEX Seattle



COST INDEX Washington, DC



This issue was compiled by Taryn Harbert with contributions from Evans Pomeges, Grant Owen, Jim Bergstrand, Jason Schultz, Paul Brussow, Maelyn Uyehara, Cassie Idehara, Simon James, Philip Mathur, Scott Macpherson, Graham Roy, Daniel Junge, George Bergeron and Steve Kelly.

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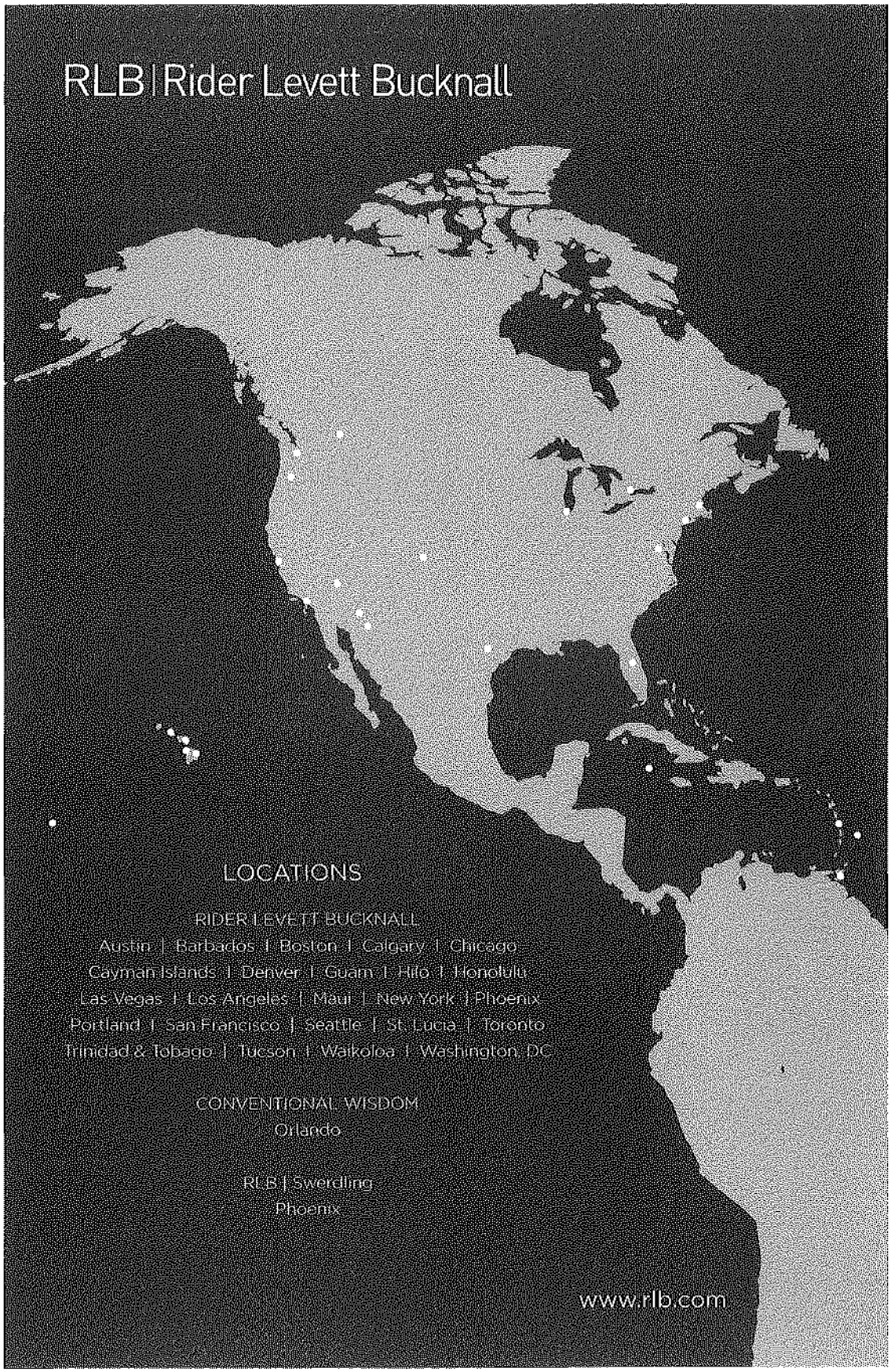

LOCATIONS

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East Cambridge ECPT Planning Team

A Neighborhood Organization for the Betterment of East Cambridge

October 16, 2015

Re: PUD-KS (Volpe) Rezoning Proposal

Dear Chairman H. Theodore Cohen, Vice Chair Catherine Preston Connolly, Members Louis J. Bacci, Jr., Steven A. Cohen, Mary T. Flynn, Hugh Russell, Tom Sieniewicz, and Associate Members Ahmed Nur and Thacher Tiffany:

Redevelopment of the Federally owned 14-acre Volpe National Transportation Center (Volpe) parcel in the heart of Kendall Square represents a singular and perhaps the last large-scale opportunity to transform Kendall Square into a balanced "live, work, play" community, as recommended by the 2013 Kendall Square Planning Study.

The ECPT, and many other stakeholders and their consultants, invested innumerable hours participating in the City Manager-appointed K2 Plan Advisory Committee from 2011 to 2013. Now, two years later, the K2 Plan recommendations are apparently being overridden. Neither ECPT, the formal advisory group for the neighborhood, nor groups from other impacted neighborhoods including Area 4 and Wellington-Harrington, were invited to participate on formal committees or working groups to help develop the re-zoning. This is especially disconcerting given the recent meetings between the Planning Board, City Council, City Manager, CDD and neighborhood group representatives over the past year during which early and meaningful involvement of neighborhood groups in development planning had been agreed upon. To avoid repeating the widespread public dissatisfaction with the planning/approval processes of the Sullivan Courthouse, and Alewife projects, for example, the City Manager should have appointed a committee, including neighborhood group representatives, to collaborate on the Volpe rezoning. We call on the City Manager to slow-down the rezoning process and appoint such a committee now, and make the Volpe rezoning an "early action" item under the City-wide Master Planning process.

Given that ECPT did not feel meaningfully included in the Volpe rezoning process, it recently formed an internal Volpe Subcommittee to spend time analyzing the proposed up-zoning and make recommendations, which are:

<u>Before finalizing any rezoning</u>

- Especially in winter, traffic congestion, parking and public transportation challenges are already acute in East Cambridge. As the 8-10 MM sq ft of additional building by Alexandria, Boston Properties, MIT, Volpe and others come on-line, the situation will clearly be exacerbated. Serious transportation

infrastructure improvements are necessary to accommodate these high levels of growth. More study and information is required to plan properly. Therefore, the Volpe rezoning should be timed to integrate the findings and recommendations of the Kendall Square Mobility Task Force. This Task Force was formed earlier this year by the Mass Department of Transportation and City of Cambridge and is scheduled to complete its Kendall area mobility studies and release recommendations near year-end 2015, with a full report to follow in early 2016.

- Include the Volpe rezoning in the City-wide planning process that was recently kicked off with the hiring of the planning consultancy Utile. As mentioned previously, the Volpe rezoning could be an "early action" item under the City-wide planning process, as the Alewife planning area is.

- The increase in floor area ratio (FAR) from 4.0 in the K2 Plan to effectively 5.5 or more (including the new Volpe building of approximately 400,000 sq ft), in the proposed rezoning amounts to a zoning bonus of about 1MM sq ft. At a conservative estimated value of $125/FAR sq ft this ***represents $125MM in bonus value*** being created for the federal government when they sell the site to developers. Before finalizing any up-zoning, the City needs to articulate the *economic/political rationale* for granting this bonus, and decide what ***commensurate payments or benefits*** will be made to Cambridge residents in exchange for this bonus. (Has CDD run economic projections on the development? And if so, what are they and how are they informing the rezoning?)

<u>Changes to proposed zoning needed</u>

- The proposed rezoning should be revised to exclude federal land (which will be the site of a separate, new federal building on a 4 acre site) from calculations of the FAR for the remainder of the site. It is highly distorting to include the land for the federal building in the overall site FAR calculation, while not including the square footage of the new federal building in that calculation. Revised FAR calculations should be published and available.

- The amount of public open space required on the Volpe site should be at least 5 acres and should be accessible to the public 24/7. This open space should exclude federal land, roof decks, roadways, sidewalks and the like. The open space can be distributed around the site, but should create at least one significant park at least 3 acres in size that is located to receive adequate sunlight, versus being in the shadow of new buildings. The open space requirement should specifically exclude federal land, because such land cannot be guaranteed to be publicly accessible in the long term. (For reference, the K2 and Eastern Cambridge Planning Study (ECaPS) plans both recommended 7.5 acres of open space.) In addition, ECPT feels that if the density of development and heights of buildings on the site are radically increased, as proposed, (even up to 500 ft), the amount of open space should logically ***increase*** not decrease. The reduction of open space by about 50% while increasing the density by about 30% is an unfair trade for residents and will create an urban canyon effect. Cambridge is the 10th densest city in the US and, according to the City's own 2000 Green Ribbon Open Space Study, needs much more open space to balance its density and provide the environmental and social benefits that make for healthy communities, including more playing fields for community youth programs. (As another point of reference, all of the ConnectKendall landscape plans showed more open space on the 14 acre Volpe site than is proposed in the current rezoning, and three of the finalists recommended at least one large public park on the site.)

- Under the proposed rezoning, the total square footage of new buildings, excluding the estimated 400,000 sq ft building to replace the Volpe facility, will amount to about 3.0MM total sq ft, with a maximum of 60% commercial. Given that Kendall Square already has a very high proportion of commercial office space relative to residential units, the rezoning should reduce the commercial maximum to 40% of the non-Federally owned buildings. This reduction would spur residential development and help achieve the core "live, work, play" goal expressed in the K2 Plan. It will also help reduce anticipated transportation congestion, as more workers will be able to reside near their jobs.

- Total additional development in the pipeline for East Cambridge, including Volpe, MXD, Alexandria, MIT, Northpoint and other developments, exceeds 10MM sq ft over the next 5-10 years. Given current infrastructure capacity limits (transportation in particular), the permitting process for Volpe and other major Kendall Square developments, should be made ***contingent upon*** creation of increased infrastructure capacity. That is, studies should be conducted to establish workable infrastructure-to-development ratios that inform both zoning and phasing of new projects. The planning principle: ***infrastructure first, development second,*** should be respected.

- Detailed design guidelines must be developed to accompany any rezoning, to assure lively, human-scale pedestrian experiences and environmentally healthy spaces. These include ensuring minimal wind, noise, traffic, heat-island and shadow impacts as well as requiring sustainability features, such as green roofs/ walls, public emergency spaces, district and renewable energy, etc. This is especially important given 1. The proposal to raise the height limits of the buildings on the Volpe site, including one building up to 500 ft, almost twice the height of the current tallest buildings in the city, and 2. The need to plan for severe weather events and integrate climate change resiliency into the plans. (The rezoning should also be integrated into the Eco-District planning currently underway for Kendall Square.)

- As compensation/mitigation for any zoning bonus granted, the developers should make commensurate Public Benefit payments, a significant portion of which should be invested in the most impacted neighborhoods adjacent to the development, and made part of a participatory budgeting process for those residents.

We ask you to deeply consider and adopt our requests. And please reach out to us to discuss further. Thank you for your service to our City.

Sincerely,

Mark Jaquith
President, ECPT

Peter Crawley
Chair, ECPT Volpe Subcommittee

cc: City Council, City Manager, Community Development Department, Patrick Sclafani/GSA, Robert Johns/Volpe

Lopez, Donna ATTACHMENT K

From: Ann Fleck-Henderson <afleckh@gmail.com>
Sent: Friday, November 27, 2015 4:06 PM
To: City Council
Cc: Lopez, Donna; keepcambridgelivable@gmail.com

I join many other citizens in concern about the Volpe site up-zoning petition. It is such a big and important parcel that granting this petition prior to the citywide planning process seems foolish. If the citywide process is to be serious and worth the time and money invested, decisions of this magnitude need to be in synch with that process. The city should either fold the proposed Volpe zoning changes into the citywide planning as an early action item, or start the planning over and create a residents' advisory committee. I join others and ask the City Council not to approve the Volpe petition without revising the petition to address these concerns.

Ann Fleck-Henderson (Richdale Avenue)

Lopez, Donna ATTACHMENT L

From: asahay@gmail.com on behalf of Apratim Sahay <apratim@mit.edu>
Sent: Tuesday, December 01, 2015 12:37 AM
To: City Council
Cc: Lopez, Donna
Subject: Include Volpe site in citywide planning; hold off on final Volpe vote

Dear City Council,

I am a resident of mid-Cambridge and have rode past the Volpe site almost every day for the last 6 years as I was completing my Physics PhD at MIT. Though I have been a beneficiary of the development around Kendall, its rate and intensity increasingly alarm me especially because Kendall's vulnerability to increased precipitation and flooding (including coastal flooding) has been stressed by the City's own climate change studies(see note 1). I think the City Council needs to take a much more considered approach to planning and adapting for Climate change especially in light of the opportunities for multi-functional open space and sustainability in the Volpe site that can ameliorate flooding risks and locally cool the climate. Unfortunately, I will not be present tomorrow at the Ordinance meeting but I would like the Council to listen to my following concerns:

1. Rethink Open Space into an opportunity for Flood resiliency with a proposed "Broad Wetland"

Because of imperviousness and poor drainage, Kendall Square already experiences frequent localized inland flooding especially after intense precipitation events such as Nor'easter storms (1-2 events/year). Cambridge's own vulnerability assessment has concluded with an assessment that risks of inland flooding will only increase with climate change induced higher rainfall patterns (1). Today's 20-year flood will become 2030's 2-year flood, and we must look into innovative ideas like those proposed by the City's Connect Kendall Design competition to create a more resilient Kendall (2). Those recommendations included a constructed stormwater wetland proposed for the Volpe site.

The need for a wetland is clear. As commercial and residential development advances in the Volpe Parcel and KSURP –over 4 million sf–, the Broad wetland will help resolve infrastructure problems by storing floodwaters, harvesting rainwater, and cleansing stormwater; enhance climate regulation through cooling evapotranspiration and storing carbon, all while providing opportunities for passive recreation and environmental stewardship for the community. Cambridge DPW had tremendous success in creating an exemplary, multi-functional 3.4 acre Alewife Wetland and I urge the City Council to transform the open space in the Volpe site into a similarly innovative climate-adaptive wetland.

2. Expand the notion of sustainability and community funds for public benefits to retrofit existing parks and transform streets into "green streets"

Given the amount of hardscape area in and around the Volpe site, I suggest that the Council consider require retrofitting existing parks to treat storwmater, rainwater harvesting from roofs and setting aside community funds for greening streets around Volpe with the use of trees, permeable pavement for any plazas, sidewalks including LID strategies such as tree trenches, planters,rain gardens, green roofs. Sustainability discussions should not be limited to a buildings energy effciency, but expanded to require tangible public benefits.

The city should follow its own PUD-KS Urban Design guidelines for open spaces and green corridors:"Create a significant public gathering space or public park. The park must have dimensions large enough to encourage civic participation...Create green corridors by providing canopy trees and stormwater management features."(3)

3. Include overburdened wastewater infrastructure in the zoning discussion

Both the KSURP (1 million sf) and the KSURP Volpe (3 million sf) redevelopment will further burden a wastewater infrastructure that is already overburdened. With more intense precipitation, the storm sewers which currently outfall into the Broad Canal are likely to overflow causing CSO/SSO (combined and/ or sanitary sewer overflows due to leaks and stresses) along with increased local

flooding. Again, I am simply summarizing the City's own assesment in the KSURP SEIR (4). Therefore I encourage the Council to incorporate a stormwater fee to help pay for maintenance and repair of the water-infrastructure.

4. Increase housing and jobs for local residents

I fully support the Cambridge resident's alliance rezoning petition that require at least 20% low/moderate and 5% middle-income housing, and an increase in the required minimum residential space to at least 60%, instead of the current 40%. Moreover, the rezoning should mandate more jobs for minorities in the employment generated by commercial and lab developments. Doing so will not only have obvious direct benefits to Cambridge residents and enhance racial justice but will have indirect benefits to the climate--by mitigating traffic increases and reducing typical commuting time.

I ask that you do not approve the Volpe petition without revising it to address all the concerns discussed above

Thanks,

Apratim Sahay.

References

1. MassDOT-FHWA Pilot Project Report, June 2015

<https://www.massdot.state.ma.us/Portals/8/docs/environmental/SustainabilityEMS/Pilot_Project_Report_MassDOT_FHWA.pdf>

2. Connect Kendall Square framework plan (pg 61-67)

< https://www.cambridgema.gov/cdd/projects/parks/~/media/75b0491dd5674fe09386d5106a739679.ashx>

3. Cambridge Community Development Department , draft 11/9/2015
<http://www.cambridgema.gov/CDD/zoninganddevelopment/Zoning/Amendments/~/media/2F4D76F3453146FD9F46E06AD380E67D.ashx>

4. See section on Wastewater in Kendall Square Urban renewal Project Single Environmental Impact Report

<*www.cambridgeredevelopment.org/s/**KSURP_SEIR**-101515-Part-One.pdf*>

Lopez, Donna ATTACHMENT M

From: Ovadia R Simha <simha@mit.edu>
Sent: Tuesday, December 01, 2015 2:53 PM
To: City Council
Cc: Lopez, Donna; Paden, Liza; City Manager; Farooq, Iram
Subject: December 1, 2015 Ordinance Committee hearing on Volpe Proposal

Dear Members of the City Council,

As one of the few persons in Cambridge who has been involved in the development of Kendall Square from its initial inception in 1965 to the present I have seen both important achievements and painful mistakes in the evolution of this part of the city. When haste replaced a thoughtful and prudent process the results have always been to the city's disadvantage. As I have reviewed the zoning proposal put forward to you by the Planning Board I would suggest that it is an immature creature that requires more careful thought and scruitney. It reflects, as demonstrated in the quickly assembled preliminary economic analysis, a lot more questions that need to be answered before a decision on land use, urban design and community impact are arrived at.
I ask that you be prudent and allow this proposal to find an early grave.
Among the things which need to be fully understood is the long period between the selection of a developer and the actual beginning of tax paying commercial and residential development. Only after the completion of the new Volpe building will the developer have access to the commercial development sites. This may be a period of 4-5 years at a minimum. During which both the redevelopment authority and MIT may be proceeding to execute their proposals. Will they be in synch with the Volpe development or will they be in conflict? Cambridge needs the kind of planning and zoning tools here that will give the city the flexibility it needs to insure that the area will be soundly developed.
There is no question that the developers that have been invited by Volpe to participate in the development of its new facilities are all heavy hitters and will be ready , willing and able to participate in this extraordinary opportunity in any case. They all have a long view and believe the Kendall Square area will be a rich mine for many years to come. The question is will the zoning that will guide this development be mutually beneficial to the city , the neighborhood and the people who will come to live and work in this area in the future.
Therefore, I want to endorse and recommend the alternative proposal presented to you by the East Cambridge Planning Team as a much more desirable and sensible basis for the planning of this area. And I urge you to send the current Planning Board proposal back to the drawing board.

Sincerely ,
O. R. Simha
303 Third Street

Lopez, Donna ATTACHMENT N

From: Jack Boesen <jackboesen@gmail.com>
Sent: Monday, November 30, 2015 4:37 PM
To: City Council
Cc: Lopez, Donna
Subject: Volpe decision

I am writing as a Cambridge resident of more than 25 years. Any decision that the Council makes regarding the Volpe development will have an enormous effect on our city. I ask that no decision be made until after the completion of the city wide planning process to ensure any decision is harmonious with the city wide goals.
Jack Boesen

Lopez, Donna ATTACHMENT O

From: Michael Hawley <mike@media.mit.edu>
Sent: Monday, November 30, 2015 11:39 AM
To: City Council
Cc: Lopez, Donna
Subject: Volpe

To the City Council:

I am unavailable to comment in person on the Volpe matter at the December 1 public hearing, but offer this letter.

The most livable, workable, wonderful, cherished cities or districts in the world are the way they are because of excellence in planning, zoning, urban design, and architecture. The aim? To create private places and public spaces that are not only economical, but a joy to live and work in. Failure to uphold decent standards results in crappy architecture, catastrophic sprawl and congestion, unmaintainable buildings, unaffordable neighborhoods, and a lousy, blighted, crumbling public realm not worth caring about.

Consider how just one thumbnail metric correlates with your own experience: FAR (floor area ratio). In San Marco piazza (Venice), FAR=2.85. Paris, overall, is FAR=3 (with quirks like the Eiffel Tower and Notre Dame poking at the envelope). Vancouver, a lovely and livable city, maintains a maximum of FAR=2.5, and also has the highest density of residential occupancy of any north american city. The densest parts of downtown Manhattan (where "skyscrapers" were invented) are FAR=10-15.

So.

At the Volpe site, the ECAPS report recommended FAR=3-ish. But the CDD proposal before you calls for FAR=5.4. That's a LOT bigger. Among other things, this incurs more than 14,000 new vehicular trips per day (on top of the existing untenable daily traffic congestion), and largely disposes of the public open space requirement. The impacts of this would likely be catastrophic. As for the architecture, it isn't exactly dreamlike (e.g., a glorious art deco Rockefeller Center with Christmas tree and skating rink).

I am heartened that some councillors see these problems and would like to proceed cautiously on Volpe, but I remain gravely concerned given the City's recent track record on zoning matters.

Consider three data points:

1 - The Courthouse in East Cambridge:

The zoning limit is 80' and FAR=2.75, but the city (impelled via the city solicitor, the planning board, CDD) chose not to enforce these limits. The permits were issued over a torrent of protests, and ultimately under the pretense that the structure should be "grandfathered" as a legal nonconformity. In fact, it simply is not a "nonconforming structure" by the definition in our own ordinance. To be nonconforming, a structure must already be "in existence" when the zoning limit was enacted. The Courthouse was not (zoning dates from 1960, the Courthouse after 1968). It is that simple. Yet that basic legal definition was never even cited by City Solicitor Nancy Glowa as she and the Developer sought to persuade you to grease things along. Instead, City planners (including many of you) generally shrugged as if to say: "the building is there; guess we're stuck with

it; guess it's okay to hold our nose and look past our zoning laws." Despite bitter battles and widespread community ire, the majority of City council did little to stop it. As you also know, this matter is now in court: plaintiffs (your fellow citizens) are essentially arguing to uphold zoning (since the City did not). Even if courts rule that the City erred, I have little confidence that City planners and developers won't simply clamor for a variance or plow through another "upzoning" petition to drive development ahead.

2 - The Normandy-Twining "Upzoning":

Even that word "upzoning" hints at "spot zoning" — the practice of tweaking zoning on a focused site primarily for the benefit of one developer. That it was called the "Normandy-Twining" petition tells you exactly which developer was on the spot. As you know well, there were heated protests from the community and from a couple of our councillors in opposition to Normandy-Twining on many grounds. Among other things, Prof. Larry Lessig read City Council the riot act, lecturing you on the color of money and citing the alarming fact that most of the sitting councillors receive much of their campaign moneys from wealthy commercial real estate interests. Yet many of you continue to accept funds from real estate pros on whose permits and zoning issues you are asked to vote or opine. It came as no surprise to many that Normandy-Twining was passed by the Council, with the "yea" votes coming from councillors most of whom received funds from Normandy-Twining among other real estate interests. The "optics" of this are glaring.

3 - Volpe:

Here again, "upzoning" is the word of the day. The zoning limits are being lifted to accommodate a development, rather than the other way around — using zoning to guide development. The proposed changes are huge. The recent planning work (ECAPS in 2001; and K2 which was dominated by developers and businesses in 2013) has been largely cast aside by CDD, which is pushing a rezoning with even more radical increases in height, density (FAR), daily traffic (inviting a fiasco given the already inadequate parking and transit), elimination of more than half of the 7.5 acre public park required by both ECAPS and K2; and sketchy financial projections accepted by the Planning Board to rule that no further community benefits could be required in the zoning. Is ti any wonder that many are complaining this is being driven along much too aggressively and hastily?

It is beginning to feel as if our zoning is merely lines in the sand, to be redrawn or blown away whenever it's convenient (or whenever a developer comes knocking).

Folks, the patterns here are glaring and they are sad. As the ball bounces from one big site to the next, our City is playing loose with zoning — first the Courthouse (failing to uphold our zoning laws), then Normandy-Twining (classic spot-zoning, a tweak to largely benefit a single developer, amid appalling allegations of corruption), and now Volpe (barreling ahead aggressively to upzone another site, disregarding existing plans, and failing to incorporate this in the master plan we are paying for).

These huge developments are among the biggest in the City. (Even the "ballpark" figure of $400m being kicked around for the building is ironically bigger than the cost of almost every actual major league ballpark in the US).

Are they shining examples of urban planning and wise zoning?

Do they celebrate the public realm with terrific architecture and beautifully tended open space?

Do they reflect best practices?

Hardly. Many regard them as skid marks.

I urge you to listen to what residents and community groups and professional planners and ethics watchdogs are saying.

I urge you to think about the difference between two words: "Upzoning" versus "Planning."

Above all, I urge you to take a step back, let CDD's Volpe upzoning petition expire, and instead, let's devote our energies and creativity to the sort of professional planning, urban design and stewardship our City and its future inhabitants will be proud of.

Michael Hawley

Lopez, Donna ATTACHMENT P

From: marie elena saccoccio <saccocciom@yahoo.com>
Sent: Monday, November 30, 2015 1:05 PM
To: City Council; Lopez, Donna
Subject: Opposition to Volpe

Dear City Councilors,

We would like to formally register our opposition to the Volpe upzoning that is now before the council for consideration. We are homeowners of 55 Otis Street. This has been the family homestead for almost 75 years. Our family has paid property taxes to this city for over a century. We note that the most dramatic changes to zoning are often being considered during summer months when most residents are on vacation or now on the brink of December holidays, conflicting with many preparations and religious obligations. We further note that all upzoning we have experienced thus far has resulted in a cacophony of architectural styles and bulk that in no way add to the livability of East Cambridge. Take a stroll down to Binney etc to view the Alexandria Buildings. Do you prefer the mustard yellow formica-like edifice with brown detail? Or, perhaps mint julep detail to the otherwise concrete structure facing Third and adjacent to the mustard yellow formica? How about 22 Water Street, now affectionately called the Borg Cube Building, a copy of Star Trek Building in which aliens infiltrate and take over neighborhoods. The massing of all these structures is absolutely overwhelming. While I understand the spin and city position is that all this development is great for the tax base. Well, just about every resident I know experienced a substantial increase in property taxes, no matter the tax rate.

We wholeheartedly join in the letter submitted to you today by Michael Hawley and provide it here for your convenience.

Marie Elena Saccoccio, Esquire
55 Otis Street
Cambridge, MA 02141

Betty Lee Saccoccio
55 Otis Street
Cambridge, MA 02141

Letter Submited by Michael Hawley:

To the City Council:

I am unavailable to comment in person on the Volpe matter at the December 1 public hearing, but offer this letter.

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So.

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Michael Hawley

Lopez, Donna ATTACHMENT Q

From: Zoro Cline <vayavahi@yahoo.com>
Sent: Tuesday, December 01, 2015 4:46 PM
To: Lopez, Donna
Subject: No Fast-Track on Volpe Petition

Dear Planning Board Members,

I believe that the strong concerns
Of the community should be given priority over the pure money-hungry Demands of the financial/real estate Interests that have over-run our communities. All safeguards must be considered to prevent the deplorable results such as what happened in the development of Central Sq.

Truly Yours. Adam Liebling

CITY OF CAMBRIDGE
COMMUNITY DEVELOPMENT DEPARTMENT

IRAM FAROOQ
Assistant City Manager for
Community Development

To: Ordinance Committee and Planning Board

From: Iram Farooq, Assistant City Manager for Community Development

Date: November 9, 2015

Re: **Revisions to the Re-filed PUD-KS (Volpe Site) Zoning Proposal**

Process Update

In June, the City Council and Planning Board began official consideration of a set of amendments to the PUD-KS zoning district regulations. The proposal was developed by CDD staff and the Planning Board based on the recommendations of the Kendall Square (K2) Planning Study conducted in 2011-2012. The majority of the PUD-KS district is owned by the Federal government and is home to the Volpe National Transportation Systems Center.

The City Council determined that additional outreach to inform residents about the petition and to gather input on the proposal would be beneficial. The original petition was not acted upon and the petition was re-filed to allow time for such outreach. Since June, CDD staff have received a feedback on the proposal through a number of discussions and processes, including the following:

- Joint Public Hearing of the City Council and Planning Board (June 29) and additional public hearings at the Planning Board (July 14 and October 20).
- Seven community "drop-in" discussions at neighborhood parks, public buildings and events throughout the summer and a workshop-style community forum in the fall.
- Visits to neighborhood organizations including Area 4/Port Neighborhood Coalition and East Cambridge Planning Team.
- Completion of the *Connect Kendall Square* open space planning and design process, with the publication of a Final Framework Plan by Richard Burck Associates.

Suggested Modifications to Proposal

These discussions have informed staff's thinking on several key aspects of the proposal, leading to a set of suggested modifications for the Planning Board and Ordinance Committee to review and consider recommending as a substitute for the initial petition. The major revisions are explained further in this report. In addition, this package includes the following items:

- Revised zoning text, with a "clean" version (with deletions omitted) and "full mark-up" version.
- Draft "Urban Design Framework" intended to inform future development review, including a vision for desired site connections, public spaces, active ground floors and built form.
- Summary of community outreach process and feedback.

344 Broadway
Cambridge, MA 02139
Voice: 617 349-4600
Fax: 617 349-4669
TTY: 617 349-4621
www.cambridgema.gov

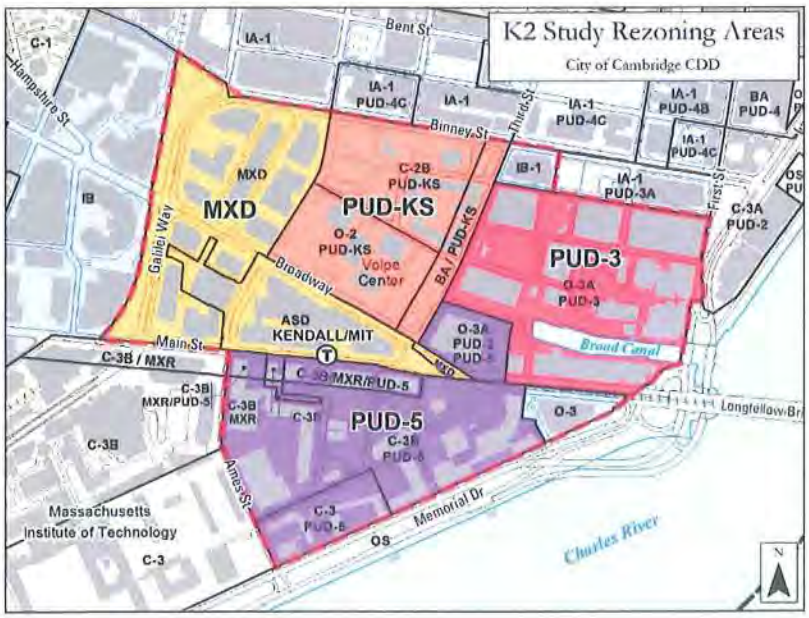
Overview of Major Proposed Revisions

- ***Affordable Housing:*** *Requiring 15% low-moderate plus 5% middle income housing.*
- ***Open Space:*** *Clearer expectations for desired open space functions; limiting how much of the requirement can be met on a Federal site.*
- ***Height:*** *More flexibility in arrangement while limiting building bulk at taller elevations to manage shadows and other impacts.*
- ***Active Uses:*** *More explicit desired ground floor uses including grocery stores, spaces to serve families with children, and spaces for small independent operators; limitations on banks.*
- ***Urban Design:*** *Creation of an Urban Design Framework to inform future development review.*

Background

The Kendall Square (K2) component of the "K2C2" Planning Study, which concluded in 2012, recommended zoning changes to four districts (see below). The K2 plan proposed increasing the overall capacity for development by approximately 5 million square feet above 2011 zoning limits, of which about 40% or more would be housing. The additional capacity would also support other public goals such as providing active uses on the street, public open space, increased sustainability requirements, reduced auto demand, innovation space to retain smaller companies, and funding to support public space programming, transit improvements and workforce readiness.

The PUD-KS zoning proposal, initiated by CDD and discussed at the Planning Board starting in January, follows the recommendation of the K2C2 study with some variations informed by discussions at the Planning Board and City Council. The timing of the proposal responds to the U.S. General Services Administration (GSA) announcing in 2014 that it would begin a process to select a development partner to construct a new Volpe facility in exchange for the ability to develop the remainder of the site for private uses in accordance with the City's zoning. The GSA expects to complete the selection process in 2016.



Affordable Housing Requirements

Housing was one of the main issues raised in the public hearings and community discussions. The feedback received echoes the City's longtime planning objectives to transform the character of the area from an office district to a mixed-use neighborhood, to add to the City's housing stock in a sustainable way, and to provide new affordable housing opportunities.

The revised zoning proposal suggests increasing the minimum affordability requirement in a PUD-KS development plan from 15% of total housing to 20% of total housing, with a 15% low-moderate income component and a 5% middle-income component. The revised proposal is written with some flexibility in the occupancy limitations for the middle-income component, so it could be occupied by low, moderate or middle income households in order to adjust to changes in demand over time. The total of 20% affordable is more than has been required of any privately-funded residential project in Cambridge so far, and matches the zoning for the "Mass and Main" portion of Central Square adopted earlier this year. The expected result on the Volpe parcel would be about 200 or more affordable units.

The total housing expected on the Volpe parcel would remain the same at over one million square feet, which is about half of the residential development anticipated by the K2 study. This is still a minimum requirement, which allows for more housing to be included in a development plan with a commensurate decrease in commercial development and proportional increase in affordable housing. It is not unreasonable that a developer may seek a somewhat higher proportion of housing due to physical, economic or other factors related to the specific development plan.

It is important to note that while housing is a priority, Kendall Square is a leading economic center in the region and the district is best suited to accommodate future commercial growth in the city. Fundamentally, the demand for commercial space in Kendall Square is what makes complex redevelopment opportunities like the Volpe site possible.

ALL FIGURES APPROXIMATE	**Current Zoning**	**Initial Proposal**	**Revised Proposal**
Total Housing (SF)	967,000 (min.)	1,116,000 (min.)	1,116,000 (min.)
Affordable Requirement	11.5% low-mod. inc. **11.5% total**	10% low-mod. inc. 5% middle inc. **15% total**	15% low-mod. Inc. 5% middle inc. **20% total**
Total Units	879 (approx.)	1,014 (approx.)	1,014 (approx.)
Low-Moderate Units	101 (approx.)	101 (approx.)	152 (approx.)
Middle Income Units	None required	51 (approx.)	51 (approx.)
Total Affordable Units	**101 (approx.)**	**152 (approx.)**	**203 (approx.)**

** Assuming an average ratio of about 1,100 square feet of residential Gross Floor Area per dwelling unit.*

Public Open Space

A variety of opinions have been elicited about future open space on the Volpe site. Some community members prefer one expansive public park while others have advocated for smaller, urban parks that are integrated with surrounding uses. People also expressed desires for active recreation, passive enjoyment, natural environments, public art, and indoor/outdoor spaces. While the ideas have been varied and sometimes conflicting, some common themes that emerged included the following:

- A space that performs a true civic function with a public feel.
- Spaces with active building edges.
- Enhancements to surrounding open spaces and connections such as Loughrey Walkway (Sixth Street extension) and the Broad Canal
- Minimal overshadowing by buildings.

The revised zoning proposal and the new Urban Design Framework incorporate these common themes.

The *Connect Kendall Square* competition process also informed discussions by allowing planners and designers to demonstrate different systemic approaches to open space. The competition winner, Richard Burck Associates, proposed a plan (below) with different public spaces on the Volpe site serving different functions, including a large natural wetland, an active civic plaza, and a connecting pathway extension of the Broad Canal corridor serving as a "marketplace" fronted by active ground floors. This concept, while not a finished plan, demonstrates how an integrated, contiguous open space system can serve varied needs. It also demonstrates how open spaces and buildings can complement each other.

Some discussion has centered on the quantity of public open space. The initial zoning proposal requires at least 25% of a development parcel to be public open space. While this quantity could be increased, either by increasing the zoning minimum or by approving a higher amount in the PUD permitting process, it would limit how buildings could be arranged on the site. Public discussions of the proposal, some of which have involved movable mock-ups of building forms, have revealed that flexibility is helpful in determining a successful balance of uses, buildings and public space where the uses complement and enhance each other, and undesired impacts like "dead" frontages, shadows and wind are minimized.

Therefore, at the present time, **the revised proposal does not recommend increasing the strict minimum from 25%**, though a greater amount could be provided through the development review process. This would remain the highest requirement for public open space in a redevelopment area and would result in over 3.5 acres of public open space on the Volpe site, the most in Kendall Square. This would also result in a percentage of open space similar to other large redevelopment projects like North Point, Alexandria and Cambridge Research Park. Moreover, while the *Connect Kendall Square* process did not focus on the amount of open space, the proposals have shown several attractive options for open space configurations that occupy approximately one quarter of the site or more.

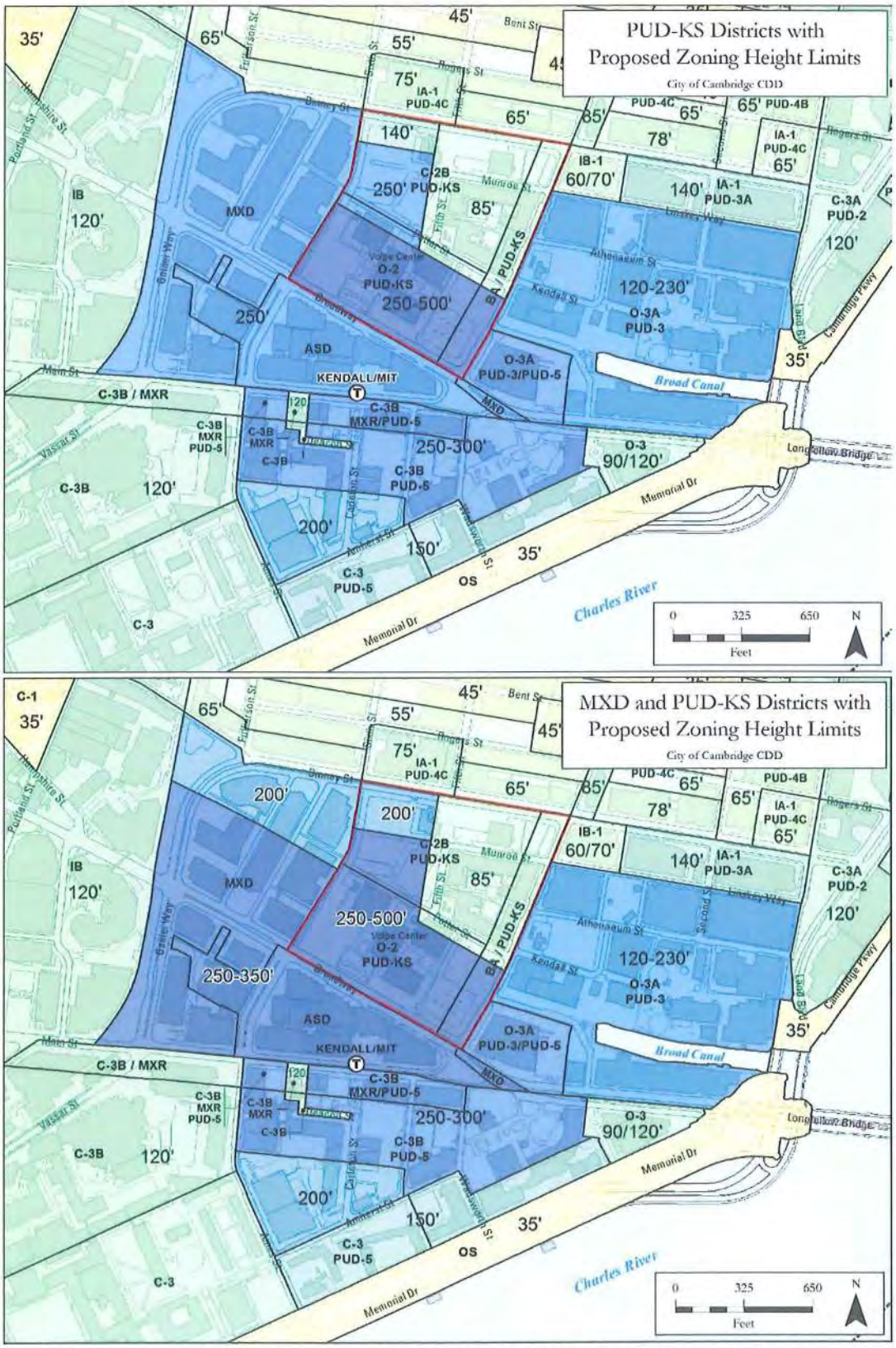
The role of Federal land in the public open space system has also been discussed. If a new Volpe facility is built, then that site will include open space as is generally required for a Federal building. While the current Volpe site has limited public access to open space, it is more typical for new Federal facilities to have open spaces that are designed to allow pedestrian access while still meeting Federal security standards. The City cannot regulate how Federal land is used, but the City can encourage Federal open space to be usable to the public and integrated into the area-wide open space system by allowing it to fulfill some of the zoning requirement. This was the rationale behind the initial proposal.

However, subsequent discussions have raised a concern that all of the open space requirement might be met on Federal land, leaving no public space under the City's control, which is not the intent. Therefore, **the revised zoning proposes that no more than half of the public open space requirement can be met on the Federal site**, which would avoid an outcome that would leave all public open space under Federal control, but would still encourage the Federal open space that is created to be integrated into the overall network of public open space in the district and the surrounding area.

Heights

Similar to open space, discussions around height have revealed that there may be benefits to greater flexibility in site design. The initial zoning proposal, like the current zoning, included a system of "height bands" allowing taller heights along Broadway, stepping down to lower heights along Binney Street. Some people suggested considering options with more dispersed heights, with some taller buildings away from Broadway in order to allow for open space with fewer shadows and less environmental impact on nearby residential uses. **As shown in the maps on the following page, the revised proposal makes slight modifications providing more flexibility in height between the extensions of Sixth Street and Fifth Street.** Any arrangement of building height and massing would still be subject to review and approval by the Planning Board, informed by applicable design guidelines.

The revised proposal also reframes but largely retains the limitations on building heights exceeding 250 feet. **Above 250 feet, the revised proposal would limit individual floor plate area to 15,000 square feet or less and total floor plate area to 10% of the development parcel (on the Volpe site, 10% would be approximately 62,000 square feet).** As in the initial proposal, only one building in the 350-500 foot range could be approved if it provides a distinctive, landmark building for Kendall Square. The new Urban Design Framework provides additional guidance and the zoning clarifies that the Planning Board could explicitly not allow any building to exceed 350 feet if a plan with a taller building is not found to provide the desired benefit.



Above: Initial proposal (June, 2015). Below: Revised proposal, including current MXD proposal.

Active Ground Floors

One of the more interesting and revealing areas of discussion has been the desired variety of uses at the public-facing ground floors of new buildings. It is clear that the successful incorporation of uses that are accessible and inviting to a diverse set of community members across the city is crucial to ensuring that redevelopment in Kendall Square will meet the community's goals.

The K2 plan provided a fairly simple formulation of the ground floor use requirements – most of the frontage along major streets would be required to be some type of retail or other public-facing use, with a Gross Floor Area exemption provided as an incentive for retail establishments of 5,000 square feet or less. More recent discussions have added nuance to these goals by identifying the types of activities that are desired, such as the following:

- Businesses that would provide convenient goods and services to the population at large, such as grocery stores, pharmacies, department stores and general merchandisers.
- Amenities and services for families, such as recreation and entertainment centers, indoor play spaces, family restaurants and child care facilities.
- Smaller spaces with lower start-up costs that could accommodate more independent and innovative retailers, such as indoor markets and retail co-sharing spaces;
- Civic indoor/outdoor spaces that could accommodate a variety of public programming.

The revised zoning proposal and Urban Design Framework more explicitly identify the types of desired uses noted above, with standards related to the amount of space dedicated to different types of ground floor activities. Some flexibility is still provided, with the understanding that in order for a plan to be successful, there must be business owners who can fill the space and thrive at that location. The revised proposal further clarifies that banks are not allowed to be included as active ground floor uses.

Urban Design

Throughout the preparation of the rezoning proposal, it was recognized that there are many potential urban forms that would meet the zoning requirements and comply with the K2 Study and Design Guidelines. While flexibility is key to enabling a successful outcome, it is also important to provide an urban design vision that describes and illustrates what a desirable outcome could look like.

The attached PUD-KS Urban Design Framework elaborates on the K2 Plan and Design Guidelines, the PUD-KS Site-Specific Guidelines that were presented in the initial proposal, the *Connect Kendall Square* process and the knowledge gained through community engagement. The framework addresses five main topics: Connections, Open Space, Active Ground Floors, Built Form and Housing for Families. Using statements, diagrams and illustrations, the framework connects the broad goals and policies found in the K2 Study to physical planning and urban design recommendations specific to the Volpe site.

Like the city's urban design guidelines for various parts of the city, the Urban Design Framework would inform the city's review process for development proposals. A development proposal may suggest alternative design approaches in order to fulfill the objectives described in the framework.

Current Status of Kendall Square Proposals

Discussions also have raised questions about the PUD-KS zoning proposal in relation to other proposals currently under review in Kendall Square, including the Cambridge Redevelopment Authority (CRA) rezoning proposal for the MXD district and the MIT "NoMa" and "SoMa" Planned Unit Development Proposals. As noted earlier, these are three of the main component areas of the Kendall Square (K2) Planning Study, and so the proposals are closely related.

- In 2013, the City Council approved the creation of the PUD-5 zoning district for portions of Kendall Square owned by MIT. This zoning incorporated the requirements recommended in the K2 plan along with some specific elements tailored to the site. MIT is currently seeking approval from the Planning Board for development plans that follow the PUD-5 requirements.
- The MXD (CRA) and PUD-KS (Volpe) proposals are only at the rezoning stage. In either case, if the zoning is adopted, then future developers would likewise need to propose specific development plans that would require public hearings and special permit approval from the Planning Board.

The conceptual illustration below is a combination of the current MIT PUD development proposal, a potential development scheme shown by the CRA during consideration the MXD zoning proposal (including the approved Ames Street residential project, which is permitted under the current zoning), and an alternative site arrangement that follows the revised PUD-KS zoning proposal.

Cumulative Development

The K2 Planning Study suggested an increase in the capacity for development in Kendall Square of approximately 5 million square feet above 2011 zoning limitations, of which about three-fifths would be commercial (primarily office/lab) and two-fifths would be residential, resulting in a total of about 15 million square feet of development within the study area by 2030. The study assessed the opportunities and impacts of that new development and recommended requirements for public benefits, which form the basis of the zoning proposals. The development figures for each of the three major K2 development areas are summarized in the table below, as they are currently envisioned under the respective PUD and zoning proposals.

One note about the table below is that it calculates the "actual" aggregate floor area ratio (FAR) of the development areas. Because some uses are exempted from FAR limitations as a policy choice to incentivize preferred types of development, it is not unusual for the actual FAR to exceed the zoning-limited FAR. The PUD-KS district especially differs because the floor area of a Federal facility is exempt from FAR limitations, resulting in a higher "actual" FAR. This choice was made to encourage the Federal facility to be integrated into a master planned development rather than developed as a stand-alone site that would be divorced from the development review process.

Anticipated Net New Gross Floor Area (GFA)* – Cumulative

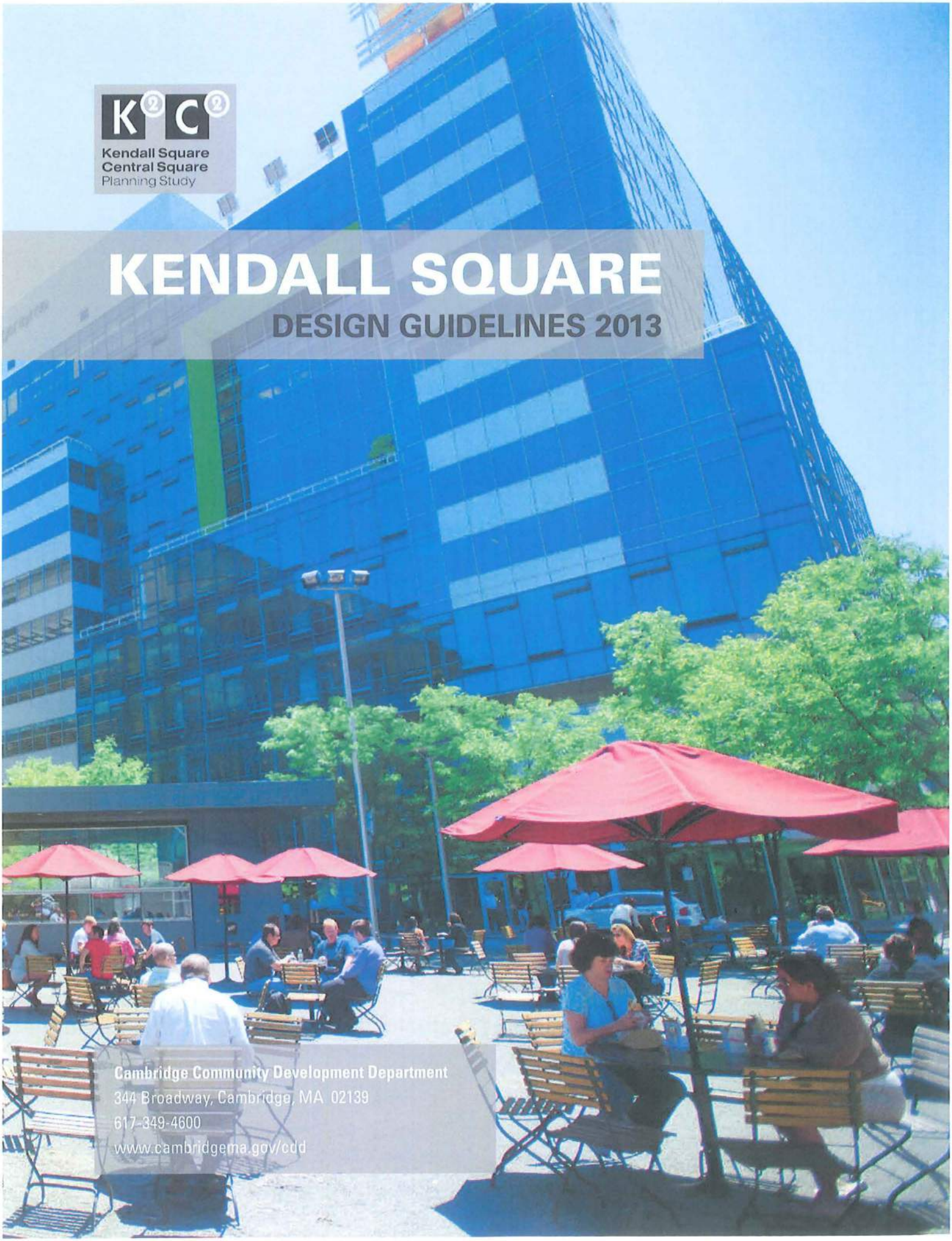
District	Status	Residential	Office/Lab*	Retail	Other	Total
PUD-5 (MIT)	PUD Plans Under Review	285,000	871,000	87,000	207,000*	1,450,000
PUD-KS (Volpe)	Zoning Proposal Under Review	1,116,000	1,716,000	140,000	None *	2,972,000
MXD (CRA)	Zoning Proposal Under Review	400,000	660,000	30,000	None	1,090,000

Anticipated Total Gross Floor Area (GFA)* – Cumulative

District	Land Area	Existing GFA*	Net New GFA*	Total GFA*	Total FAR*
PUD-5 (MIT)	1,150,000	2,571,000	1,450,000	4,021,000*	3.5
PUD-KS (Volpe)	620,000*	375,000	2,972,000	3,347,000	5.4
MXD (CRA)	890,000	3,288,000	1,090,000	4,378,000	4.9

** Notes:* ***ALL FIGURES APPROXIMATE***

- *Figures include GFA that is exempt from zoning limitations. Innovation space is included within office/lab.*
- *Retail figures are estimates.*
- *"Other" GFA in PUD-5 includes academic and dormitory space.*
- *Figures include GFA that is exempt from zoning limitations.*
- *Land Area in PUD-KS is of the Volpe parcel only.*
- *Total GFA in PUD-5 district does not account for additional development capacity for future academic and dormitory uses.*


K2C2
Kendall Square
Central Square
Planning Study
KENDALL SQUARE
DESIGN GUIDELINES 2013
Cambridge Community Development Department
344 Broadway, Cambridge, MA 02139
617-349-4600
www.cambridgema.gov/cdd

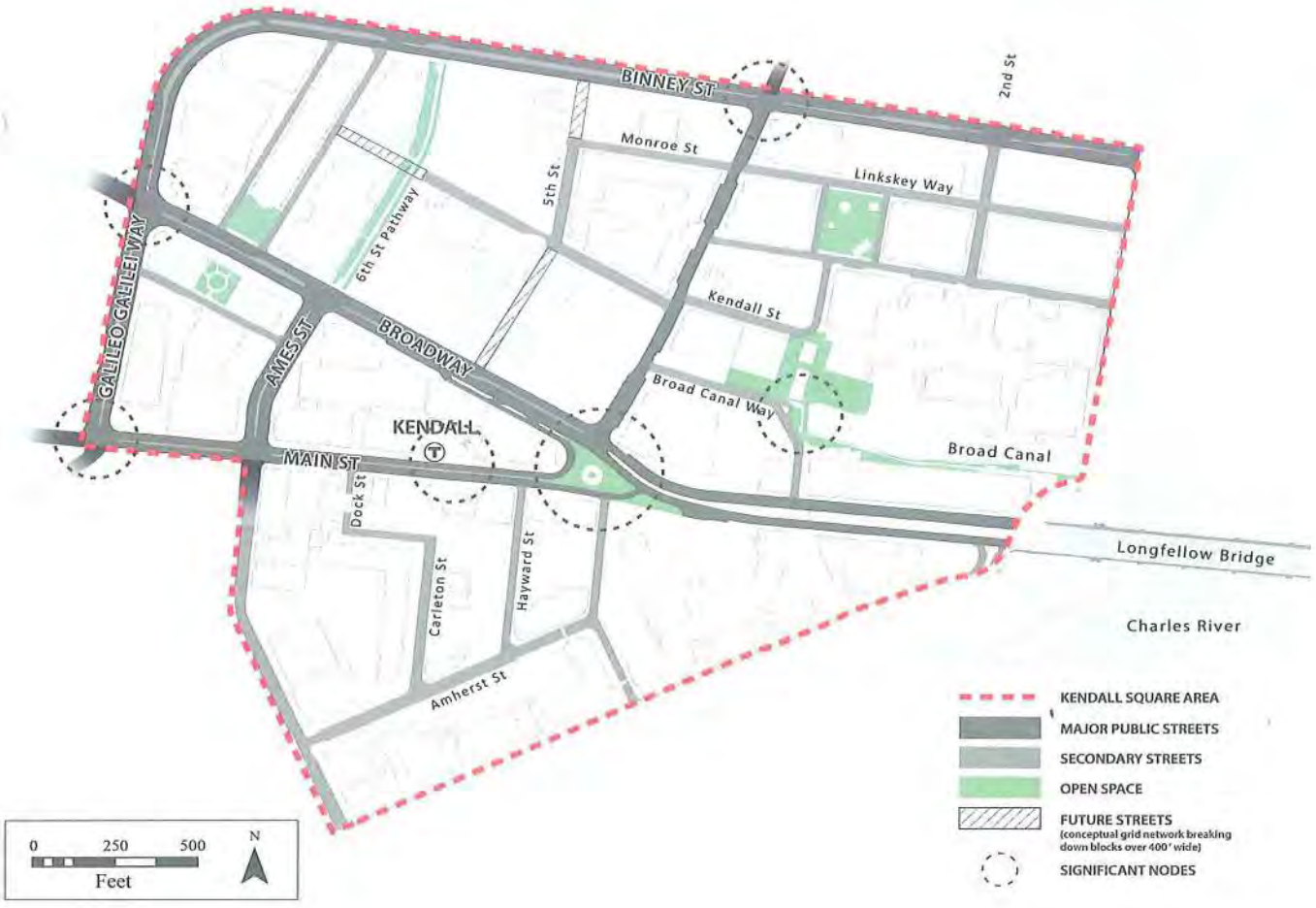
1. Introduction

The Kendall Square Design Guidelines 2013 are created as part of the City of Cambridge's comprehensive Kendall Square Central Square Planning Study (K2C2) to inform property owners, business owners, developers, and the general public about the desired form and character of development in Kendall Square. These guidelines will help guide development activities in this area, aiming to create consistently high-quality public environments, and to ensure that development contributes to the character and vitality of the surrounding community. The guidelines will be referenced in the City's Zoning Ordinance in the Project Review Special Permit section and in the PUD texts where applicable and will be used by the Planning Board in their review of all discretionary permits such as special permit and PUD applications for projects in the Kendall Square area.

The Kendall Square Design Guidelines 2013 guidelines articulate the design and site planning **goals** for Kendall Square, and **measures** to achieve them. The guidelines aim to create a positive mixed use district where tall buildings with large floorplates can be good neighbors to public spaces, smaller existing buildings, and adjacent residential neighborhoods. Therefore, the guidelines are particularly geared to sensitively manage the impacts of bulk and height and animate the major streets and public spaces through encouraging active ground floors.

However, the guidelines are not intended to impose a strict limitation on the building form and style. Other creative design solutions, or measures, not noted here may also be utilized to achieve the same goals at the discretion of the Planning Board, especially in the interest of enhancing architectural diversity in the area.

A major goal of the Kendall Square Central Square Planning Study is to enhance the quality of public street and park spaces. Buildings and private open spaces adjacent to streets and parks have a significant impacts on adjacent public spaces through their physical design and internal uses, particularly at ground level. Therefore, the design guidelines focus heavily on relationships between private buildings/open spaces and public streets/parks. Four distinct types of streets and edges deserve different criteria, addressed separately in the guidelines:



- ***Major Public Street*** – Street with block edges where the most intensive, and highest-priority, active ground level uses are present and desirable. These typically include locations where retail uses are most viable from a market standpoint. In the study area, major public streets include Main Street, Broadway, Third Street, Ames Street, Binney Street, and Galileo Galilei Way. Major public street edges should create a well-defined streetwall to help frame Kendall Square's major public streets as public spaces. They should also provide adequate space along sidewalks for outdoor activity associated with active ground level uses. Major public street edges are intended to engage a high volume of pedestrian traffic, and to support public activity throughout the day and evening.

- ***Secondary Street*** – Street with block edges where active ground level uses are present or desirable, but may require more time to mature. This may depend upon stronger market conditions or development of more appropriate spaces, where ground-level residential or other uses can support an attractive and walkable public space network. Secondary streets are intended to engage a moderate to high volume of pedestrian traffic and to support public activity throughout the day and evening, now and in the future. They should also provide adequate space along sidewalks for compact residential stoops, porches and gardens, and outdoor uses associated with retail or institutional uses.

- ***Campus streets*** have a different character and urban form than the mixed–use commercial uses and densities anticipated and desired for Main Street, Third Street, and Broadway. The Campus Streets include Ames south of Main, Carleton, Hayward, Amherst and Wadsworth. At the block corners with Main Street, it is anticipated that the retail use fronting Main Street will wrap 30 to 40 feet around the corner onto Ames Street, Hayward and Wadsworth Streets but is not expected to continue down the streets in academic buildings. It is also not expected that retail will front academic buildings on Carleton and Amherst Streets. In addition, the fact that the campus is under single ownership helps make it possible to create an attractive pedestrian experience, through providing street trees and other planting, providing transparent glazing with direct views between the sidewalk and interior building spaces, limiting the length of blank walls, differentiating the sidewalk level of buildings with signage, furniture, materials, seating opportunities, awnings and transparency and locating courtyards and open spaces to maximize sun exposure. For building facades along the lot lines, it may be possible to use building stepbacks and horizontal breaks to differentiate and enliven the building wall, respecting existing building heights and setbacks on the streets to create a more gracious pedestrian scale environment along the sidewalk.

- ***Park Edges*** – Throughout Kendall Square, there are parks and plazas that need to be better designed, managed, and connected to each other. Where new buildings abut these open space resources, special attention should be paid to activating the ground floors of the building. Furthermore, the scale and massing design should be carefully considered to minimize negative impacts to the nearby parks and plazas.

2. Environmental Quality

Goal: Kendall Square is a highly urbanized smart growth center, and, as new development is added, there will inevitably be increases in shadows, wind, noise, etc. as is the case in any new urban development. However, new projects should be carefully designed to avoid unnecessary environmental impacts. The goal is to evaluate each design decision to find outcomes that balance the positive aspects of building near a transit hub with the changes in the environment that result from more housing, retail, and business uses in relatively dense new structures located in close proximity to one another.

- ***Shadow***

Measure: Locate and shape buildings to minimize shadows on existing public parks and plazas such as Point Park, the North and South Plazas at Cambridge Research Park, and the Broad Canal area. On the Volpe site, create a master plan that configures the required new park space with a view towards maximizing solar access, while balancing the need for logical pedestrian circulation and spatial organization of new buildings.

- ***Wind***

Measure: Design new buildings and open spaces to minimize negative wind impacts on streets and public spaces. Proponents should explain how proposals have been conceived with regard to prevailing winds and any strategies to avoid excessive wind impacts on pedestrians, to the extent practicable.

- ***Vegetative Cover***

Measure: To deal positively with each site, development should be designed to provide vegetative cover, improve stormwater infiltration, and reduce heat island effect. It is understood that, in this urban setting, not all projects will be able to achieve all these measures. Projects should be considered for the feasibility of both at-grade and rooftop interventions.

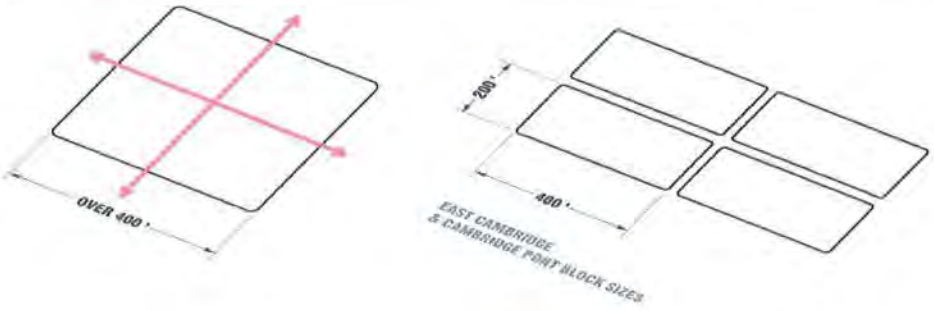
- ***Noise***

Measure: Projects should attempt to minimize noise generated from rooftop mechanical equipment. In particular, mechanical equipment on buildings near residential uses should be designed, selected, located, and acoustically-screened to protect neighbors from noise impacts.

3. Walkability

– Connections / Block Sizes

Goal: New development and redevelopment of sites should break up large blocks and increase permeability by creating pedestrian and bicycle connections through the site.



– Loading and Servicing

Goal: Loading and service are critical elements that need to be accommodated for the functioning of the district. They should be located and designed to support the walkability of the area and minimize dead zones, particularly away from major public streets and pedestrian corridors wherever possible.

Measures:

a. Locate loading and servicing areas away from major public streets and significant promenades; use secondary streets or, preferably, internal alleyways for loading and service.
b. Encourage consolidated off-street loading areas serving multiple buildings. Avoid creating loading/servicing areas exceeding two bays or 30 feet wide. Occupied ground level spaces with windows should occur between loading/servicing areas wherever possible to help diminish their impact.
c. Loading/servicing bays should be provided with architectural doors designed to complement the overall façade composition. Doors should be customarily closed when loading/servicing bays are not in use.
d. Driveway turnaround and vehicle drop-off facilities along public streets are discouraged to avoid disrupting the continuity of the sidewalk space. discouraged to avoid disrupting the continuity of the sidewalk space.

- ***Street Activity***

Goal: The vision for Kendall Square includes an emphasis on activation of the district beyond the work day. Site planning and building design should support pedestrian flow throughout the district and provide access to outdoor and indoor public spaces that allow people to gather, and encourage public activity throughout the day and evening.

Measures:

a. Locate courtyards and open spaces to maximize sun exposure.
b. Connect outdoor public realm with indoor public spaces.
c. Streets and other public spaces should feel safe in the evening. Appropriate design of lighting and wayfinding is encouraged.
d. Design to accommodate diverse retail and service offerings that serve current and future Kendall Square residents as well as workers in the neighborhood.

4. Universal Access

Goal: The design of buildings and outdoor spaces (public and private) in and around Kendall Square merits special emphasis on universal access. As the theme of innovation is at the core of Kendall Square's identity, demonstrating innovations in universal access will enhance Kendall's identity. Exemplary accessibility is an area where Kendall has particular opportunity to stand out regionally, and perhaps nationally and internationally. Kendall's flat topography and its existing infrastructure already promote accessibility and provide a strong basis for further accessibility enhancements that will set Kendall apart from its peer communities and enhance opportunity for the interpersonal collaboration important to its success.

Measures:

a. Ensure that outdoor spaces provide comparable facilities for all people regardless of their ability to climb steps. Use technology to help compensate for limitations in sensory abilities.
b. Ensure that parks and plazas provide activities and facilities serving people of all ages.
c. Improve wayfinding signage throughout Kendall Square, and create more direct accessible connections, to make mobility among destinations more convenient and efficient.
d. Provide audible and tactile information beyond existing requirements at crosswalks and in building elevators.
e. Ensure that streetscape elements do not conflict with accessible parking.

5. Built Form

The existing Kendall Square embraces various styles of developments, each symbolizing the predominant economy of different eras: industrial and manufacturing, R&D, and now, the knowledge economy. Recently, companies are increasingly seeking buildings with large floor plates to allow greater flexibility to accommodate multiple disciplines, and to provide opportunities for interaction, collaboration, and creativity.

a. Architectural Identity of Kendall Square

Goal: Architectural composition should particularly emphasize a distinct identity for the building as well as for Kendall Square. This identity should be legible from adjacent streets and critical viewpoints, as well as within the overall Kendall Square skyline when seen from a distance.

Measure: Methods of creating a distinct architectural composition include use and proportioning of materials, colors and shapes that differ from those of adjacent buildings.

Goal: Design buildings to help create streetwalls, where appropriate, to help frame the sidewalks, plazas, and other public spaces in Kendall Square.

Measures:

a. Align new facades with existing ones if doing so helps give a sense of spatial cohesiveness to the sidewalks.
b. Allow breaks in the streetwall if needed to help define entryways to buildings.
c. Streetwall design should take into account the need to provide active ground floor uses.

Examples of a distinct architectural composition of Kendall Square (left: view from Watermark plaza near Broad Canal walk, right: view from One Kendall Square plaza, Cambridge)

Goal: Convey the act and spirit of innovation in Kendall Square through transparency that directly reveals activity and displays visual media.

Measures:

a. Use transparent building materials.
b. Install media displays that show the works being done inside the buildings; avoid "advertising" imagery
c. Install interactive media to bring cutting-edge technology closer to the public, directly revealing the scene of innovators at work

From top to bottom, left to right:

- One Broadway represents an effort to convey the spirit of innovation by rehabilitating an old concrete building facade into a transparent and modern one.
- The Broad Institute in Kendall Square installed media displays in the lobby to present the research being done by the Institute. Usage of TV screens need careful consideration because screens are hard to read during daytime.
- MIT students hacked a campus building for active media display. Building facades could be utilized to accommodate high technology and creative ideas, which will bring the public closer to the knowledge economy of the twenty-first century. (Copyright: ©Chris Pentacoff)

b. Scale and Massing

Goal: Encourage building forms and site planning that relate to the surrounding context. New buildings should create sensitive transitions to neighboring uses, especially to existing residential buildings, historical structures, and public parks.

Measures:

a. Include setbacks to create transitions to adjacent low-scale buildings
b. Design and locate public and private open space to be responsive to adjacent uses
c. Use sensitive site planning and building design to reduce impact on significant view corridors from public spaces

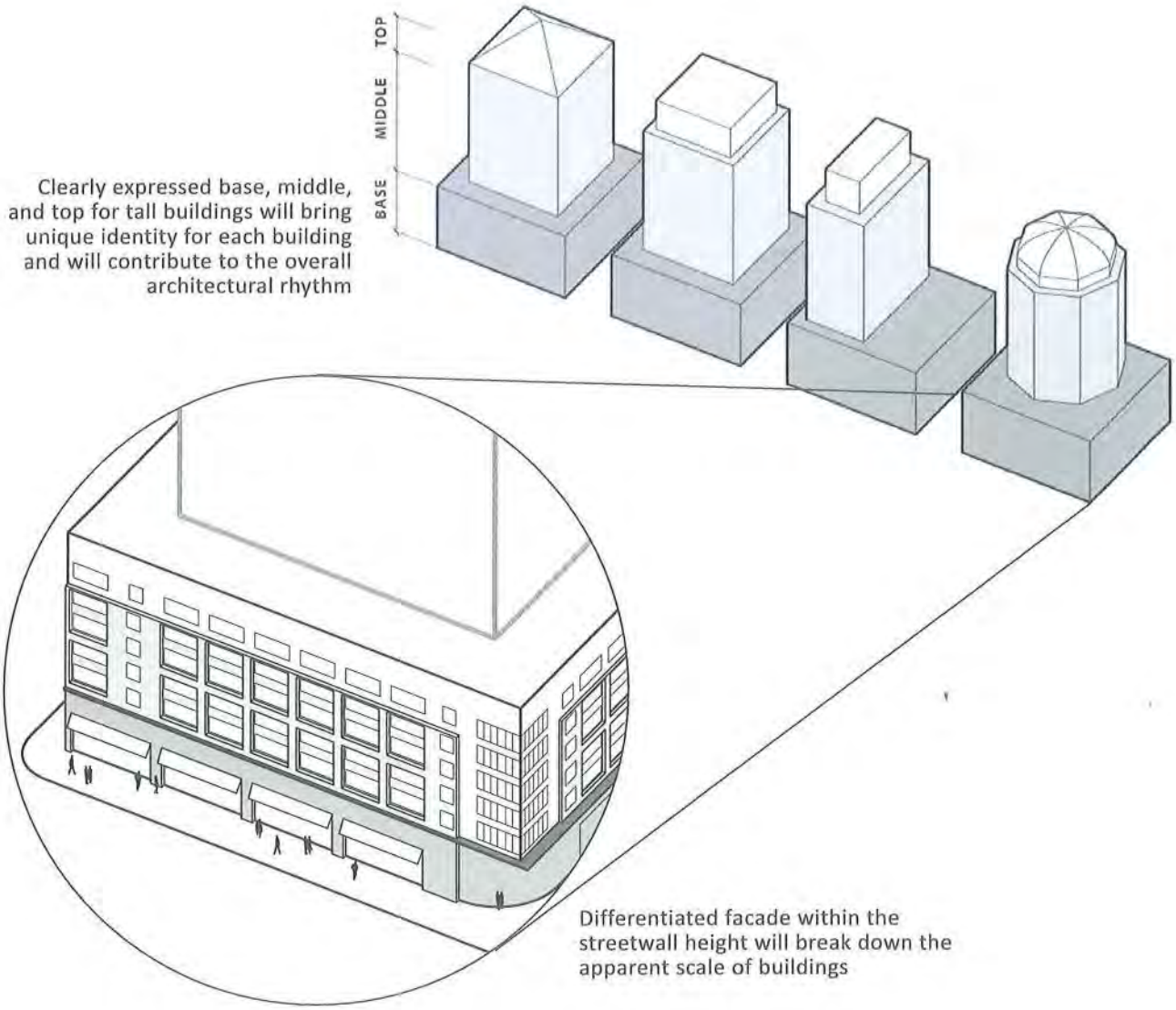
Examples of existing low-scale historical structures in Kendall Square

Goal: Design buildings to minimize monolithic massing and break down the scale of large buildings

Measures:

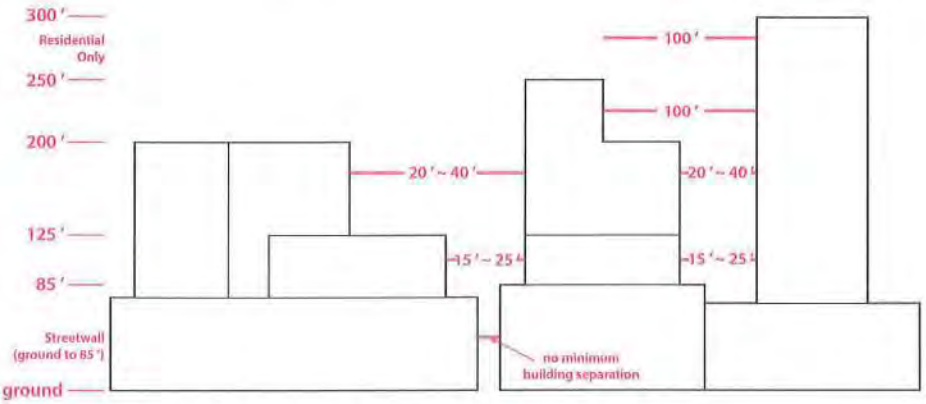
a. Generally, buildings should have a clearly expressed base, middle, and top. This division should be expressed within the streetwall height zone as well as for buildings exceeding streetwall height.

b. Pay special attention to the first floors (bottom 20 feet) of buildings, where buildings relate the most to the street and pedestrians. Different design guidelines may be applicable depending on location and uses of buildings.

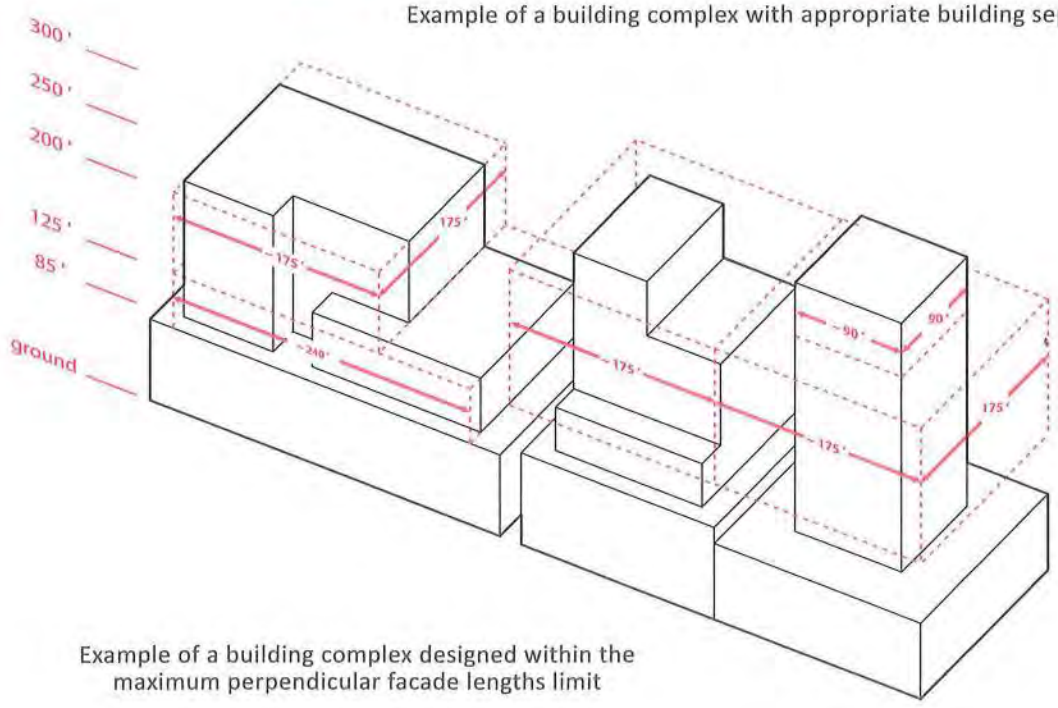


The following maximum façade lengths and minimum building separation are suggested to limit the impact of tall buildings both at the street level within the district and from nearby areas.

Height Range (feet)	Minimum building separation	Maximum length of plan dimension
251' to 300' (for residential use only)	100'	160' x 65' or 90' x 90'
201' to 250'	100'	175' x 175'
126' to 200'	20-40'	175' x 175'
85' to 125'	15-25'	240' x 175'
Streetwall (ground to 85')	None	None



Example of a building complex with appropriate building separation



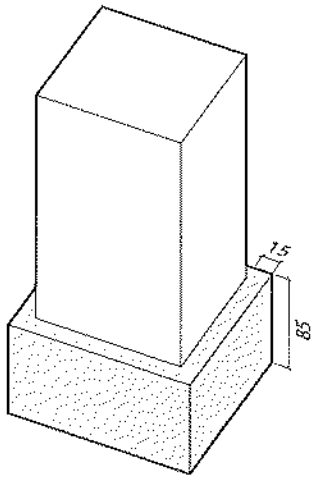
Example of a building complex designed within the maximum perpendicular facade lengths limit

– *Major Public Streets*

Goal: Create a strong datum by setting back the building at upper floors to create a strong edge to the street and to limit the sense of height at street level.

Measures:

a. Set back approximately two-thirds of the building façade above 85 feet from the principal façade by a depth of about 15 feet; flexibility will be considered when street/ground floor setback is provided.
b. Façade areas without setback may be appropriate at corners or in specific locations to create architectural variety.
c. In instances of infill development on constrained sites, provide distinct horizontal articulation at the datum height that relates to the façade of adjacent or facing buildings through means other than a setback (significant change in material, projecting cornice/fin/shade etc.)

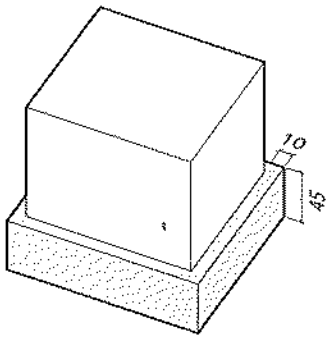


– *Secondary Streets*

Goal: Create a strong datum by setting back the building at upper floors to create a strong edge to the street and to limit the sense of height at street level.

Measures:

a. Set back any portion of the building above 45 feet by approximately 10 feet from the principal façade. Where appropriate, design these setbacks to include balconies and rooftop terraces.
b. Create a strong horizontal definition line on the façade at a height of 45′ through means other than a step-back if it successfully expresses a scale distinctly more intimate than a major public street (such as significant change in material; projecting cornice, fin or shade etc.).

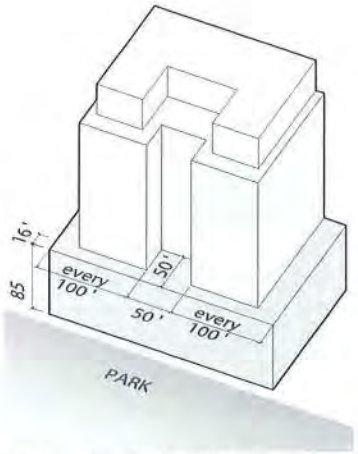


– ***Park Edges***

Goal: Development around parks and plazas should support an environment that is active, safe, and welcoming to a wide spectrum of users throughout the day, week and year.

Measures :

a. Pay special attention to scale and shadows of buildings along park edges.
b. Set back about two-thirds of the building façade above 85 feet from the principal façade depth of approximately 15 feet
c. Create vertical breaks for building volumes above 120' in height facing the park -- façades facing the park exceeding 100' in width should be separated from adjacent façades by a gap of approximately 50 feet, extending back 50 feet from the ground level façade. Residential balconies may project up to 4 feet into setbacks and gaps.
d. Façade areas without setback may be appropriate at corners or in specific locations to create architectural variety.



Example of a building massing located at park edges

Along park edges, tall building volumes should be set back behind lower ones to reduce shadow impacts. Buildings should also be set back above 85 feet to create intimate walking experience by breaking down the scale of buildings. (left: University Park, Cambridge right: Marathon Landing, Coal Harbour, Vancouver)

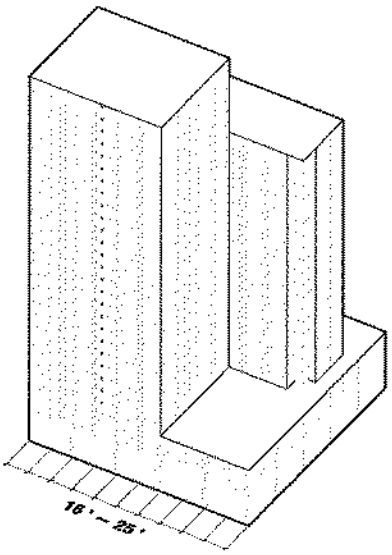
c. Visual Interest

Goal: Buildings should reflect a rhythm and variation appropriate to the urban context.

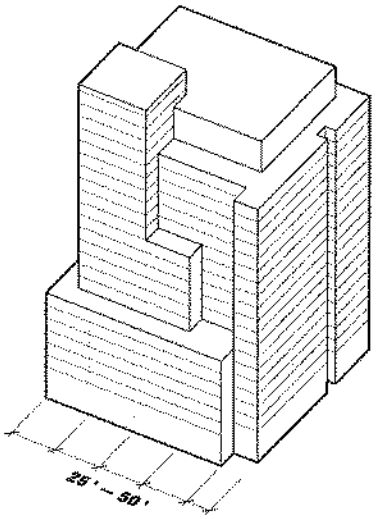
Measures:

a. Express bay widths of 16 to 25 feet in predominantly residential areas and 25 to 50 feet along edges where commercial and institutional uses are prevalent.

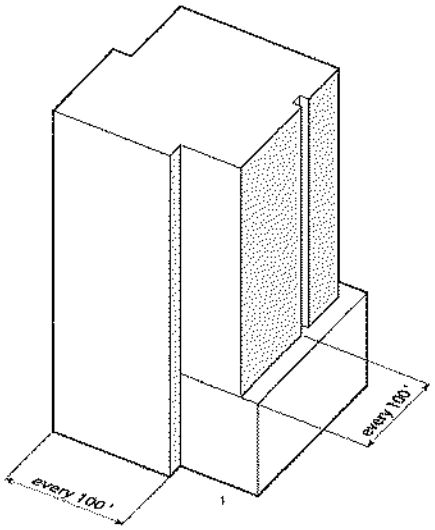
b. Establish an urban rhythm by creating a major vertical break for every 100' of façade length with a displacement of approximately 8' in depth or that divides building form into major distinct massing elements.



a. Bay widths of 16 to 25 feet for residential uses



a. Bay widths of 25 to 50 feet for commercial and institutional uses



b. Example of a vertical break

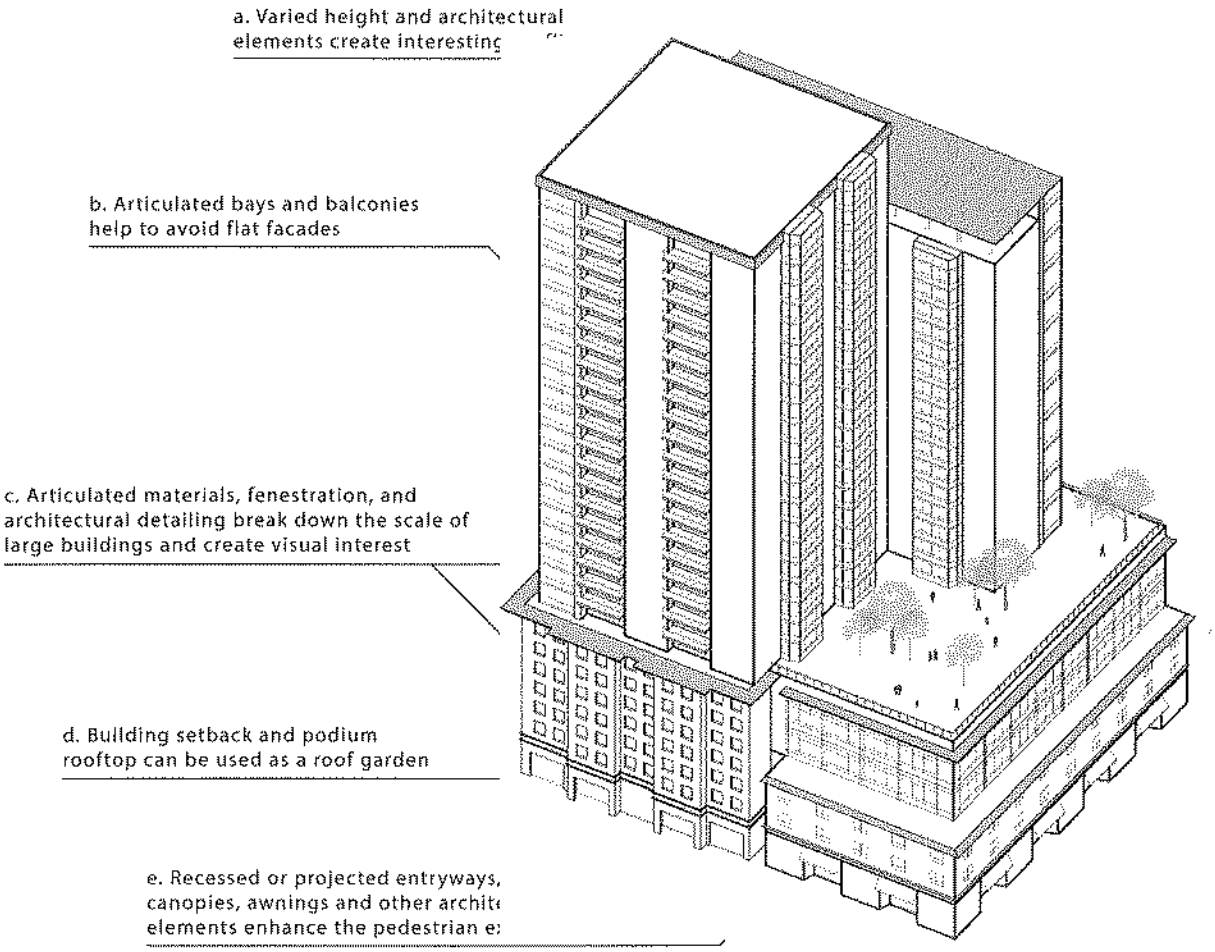
Goal: Where appropriate, vary the architecture of individual buildings to create architecturally diverse districts.

Measures:

a. Use variations in height and architectural elements such as parapets, cornices, passive shading devices, illumination and other details to create interesting and varied rooflines.

b. Avoid flat façades and create visual interest.
   - Articulate bays and balconies.
   - Utilize architectural articulation such as changes in material, fenestration, architectural detailing, or other elements to break down the scale.

c. Where buildings are set back at upper stories, use lower roofs as green roofs, balconies, terraces, and gardens.



d. Tall Buildings

Goal: Buildings over 200 feet tall should be designed with particular attention to the architectural character of the top of the building, which will be visible from significant public spaces and from some distance. Tall buildings could potentially enhance the identity of Kendall Square by defining edges or serving as landmarks.

Measures:

a. During design, consider the variety of vantage points from which tall buildings may be seen, especially from significant public spaces and nearby low-scale residential neighborhoods.
b. Tall buildings should be articulated to avoid a monolithic appearance, and should emphasize slender, vertically-oriented proportions.
   - Emphasize corners using taller elements such as towers, turrets, and bays.
   - Consider the use of at least two distinct finish materials and colors on each building.
   - Consider variation in forms that present different profiles to different vantage points, if appropriate.
c. Avoid broad "slab" volumes that make the building appear bulky. Point towers expressing vertical volumes are encouraged.
d. Consider legibility of the building top both by day and night, while demonstrating responsible use of lighting and energy consistent with sustainability requirements.

b. MIT's Eastgate graduate housing is one of the tallest buildings in Cambridge. However, due to its small floorplate and slender volume, the presence of the building is not obtrusive to the surrounding neighborhood.

c. Vertical proportions, recessed breaks between bays, varied materials, and distinct building tops lend these tall buildings unique identities and reduce their apparent scale (left: 100 Landsdowne Street, Cambridge; right: Waterplace housing, Providence, RI)

d. Use of lighting to increase the legibility of building tops at night (Amgen Building, Cambridge)

Buildings over 200 feet tall are likely to become landmarks with strong presence. Therefore, views from significant public spaces should be considered when designing such tall buildings. Images on this page are some vignettes of the Kendall Square study area from significant vantage points. These images are to help designers understand how tall buildings will be perceived in the existing context.

left: view along Broadway looking towards the Cambridge Center area

right: view along Third Street looking towards the Volpe site

view along Main looking towards the Cambridge Center area

view along Ames looking towards the Cambridge Center area and Volpe site

view from Point Park looking towards the Volpe site

view from MIT/Kendall station looking towards the Cambridge Center Area

view along Third Street looking towards the Volpe site

view along Third Street looking towards south of Main Street

view along Broad Canal looking towards Cambridge Research Park

view along Broadway East looking towards south of Main Street and Cambridge Center

view along Broadway East looking towards the One Broadway site, Volpe site and Cambridge Center

view from Point Park looking towards the One Broadway site

view from the Longfellow bridge looking towards south of Main Street and Cambridge Research Park

e. Connectors

Goal: In general, connectors over public ways are not encouraged in the heart of Kendall Square to avoid internalizing activity that is needed to achieve the essential goal of a more animated square. In Kendall Square, upper-floor connections should be considered only in circumstances where tenants need large floorplates that might otherwise result in excessive apparent building mass. Such connectors should be designed to provide architectural interest, maintain permeability, and continue to allow light and views of the sky. Connectors may be more acceptable over minor streets internal to the quieter parts of the MIT campus, such as Carlton or Hayward.

Measures:

a. All connectors should be recessed from public spaces and made highly transparent.
b. Within blocks
   - Set back approximately 35' from public street façade
   - Provide ground level public passage at selected locations
c. Over promenades or pedestrian walkways
   - Set back approximately 35' from public street façade
   - Provide approximately two stories clearance above ground
   - No more than 35' wide and 2/3 of building height (aggregate)
   - Space multiple connections apart by double their greatest width
d. Corridors that allow connections between multiple tenants/uses in different buildings are not encouraged in order to ensure that the streets and ground plane remain active.
e. In instances where multiple connectors are provided, they should be placed so as to create architectural interest and to allow a reasonable amount of light to reach the ground.

Connections should be recessed from public spaces, made highly transparent, architecturally interesting and allow light and views of the sky. (Binney Street development by Alexandria, Cambridge)

f. Rooftops

Goal: The design of rootops, including mechanical equipment and cellular installations, should be conceived as integral to the rest of the architecture of the building.

Measures:

a. Rooftop mechanicals may be designed to stand out as machinery, in which case it needs to be carefully arranged to give a pleasing visual image.
b. Screening may be used to conceal rooftop mechanicals, and in this case, the screening should be in the same idiom as the rest of the architecture.
c. It may be possible to use both techniques listed above.
d. To the extent possible, provisions should be made so that future cellular installations may be placed upon the building without detriment to the architecture, e.g. a blank wall of a mechanical screen may be conceived as such a location.

The Biogen building in Kendall Square partially expresses the mechanical equipment and partially screens it (Biogen, Cambridge)

5. Ground Floor Design Guidelines

a. Retail or Mixed-use Ground Floors

– Uses

Goal: First floors of the buildings should be actively used.

Measures:

a. ***Along Major Public Streets*** - Approximately 75 percent of the street frontage should be occupied by retail uses such as cafes, restaurants and shops.
b. ***Along Secondary Streets*** - Approximately 75 percent of the street frontage should be occupied by active uses. Active uses include:
   - retail (i.e. cafes, restaurants, shops)
   - educational and cultural venues
   - services for the public or for commercial offices (fitness centers, cafeterias open to the public, daycare centers, etc.)
   - community spaces (exhibition or meeting space)
   - art/information exhibition windows; live/work spaces
c. Lobbies for office, research and residential uses are discouraged from occupying extensive ground floor frontage.
d. Carefully designed residential stoops and entries that meet ADA requirements are encouraged.

Goal: Retail and services should serve local communities as well as people who work in the area.

Measures:

a. Leasing of space to small, locally-owned businesses is encouraged.
b. Diverse retail and service offerings that serve current and future Kendall Square residents and surrounding neighborhoods (e.g. pharmacy, greengrocer, bakery, drycleaner, and convenience store) are encouraged.
c. Building frontage devoted to bank, trust company or similar financial institution should be limited to approximately 25 feet. Larger floor areas can be devoted to bank uses when fronted with other active retail uses.

Goal: Where retail is not provided, ground floor spaces should be designed to accommodate retail in the future.

Measures:

Standards for spaces convertible to retail include:

a. Adequate floor-to-floor height (e.g. 15-20 feet) to allow food-oriented uses, with ventilation etc.
b. Leasable ground floor depth from façade should average about 40 feet
c. Ground floor level flush with or easily accessible from sidewalk
d. Ground floor façade readily convertible to retail-style storefront
e. Designed to accommodate venting and exhaust needs of food service uses
f. Services such as interior power and HVAC zoned or easily convertible to enable convenient division and sublease of interior spaces to retail tenants.

– ***Setbacks***

Goal: Create space at the sidewalk level to allow for interaction between activities on the ground floor of the buildings and the public sidewalk.

Measures:

a. Ensure that the sidewalk includes ample space for walking, street furniture, street trees, bicycle parking and other plantings, and is designed to accommodate a high level of access for all users, including those in wheelchairs or pushing strollers.
b. Provide a small setback (5 to 15 feet) from the right-of-way for café seating, benches or small open spaces.

Goal: Buildings should be directly engaging to the public and create a well-defined streetwall to help frame Kendall Square's streets and public spaces.

Measures:

a. Setbacks exceeding 10 feet should be provided with caution.
b. Setbacks used exclusively for ornamental landscaping are not encouraged.

Good examples of adequate sidewalk width directly associated with ground floor uses. (left: Tavern in the Square, right: Flour Bakery, Cambridge, MA)

– ***Façades***

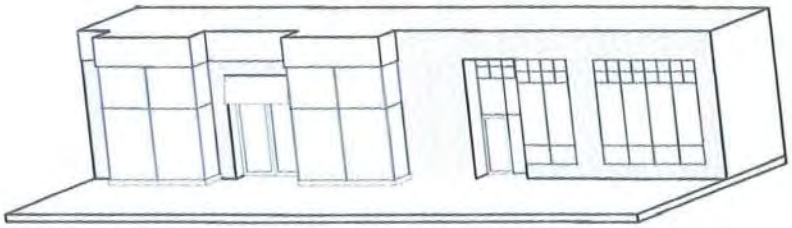
Goal: Design ground floor façades of building to reduce the distinction between exterior and interior space to extend the effective public realm indoors and reveal indoor activity on the street.

Measures:

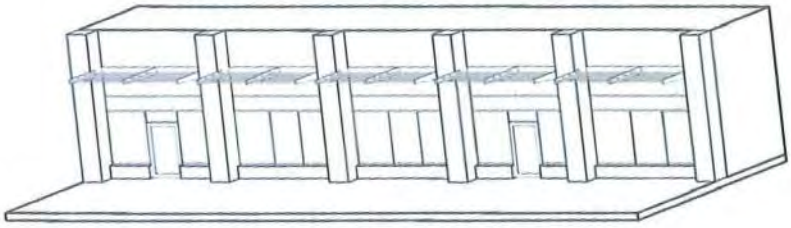
a. Transparent materials and interior lighting should be used to maximize visibility of street level uses. Transparency is most important in the portion of the facade between about 2 feet to about 10 feet above the sidewalk level, i.e. where people are likely to look in. Incorporate 60 to 75 percent transparent glazing in the ground level façade ***along major public streets*** and 40 to 60 percent transparent glazing in the ground level façade ***along secondary streets***.
b. Active ground level spaces should have strong, interactive connections with adjacent public sidewalk/plaza space using strategies such as extensive transparent glazing, interactive media or public art, large operable doors and windows, or associated outdoor seating.
c. Blank walls exceeding 20 feet in length should be avoided.
d. Awnings and canopies are encouraged to provide shelter and enliven ground floor facade.
e. Mechanical/utility rooms and service/loading areas are not appropriate along the major streets and should be located on secondary streets.

b. Effective strategies include combining highly transparent facades with prominent interior media (left: Apple store, Back Bay, Boston), installing large operable windows connecting indoor and outdoor (middle: Dwelltime, Cambridge) and outdoor seating (right: Lafayette Square, Cambridge).

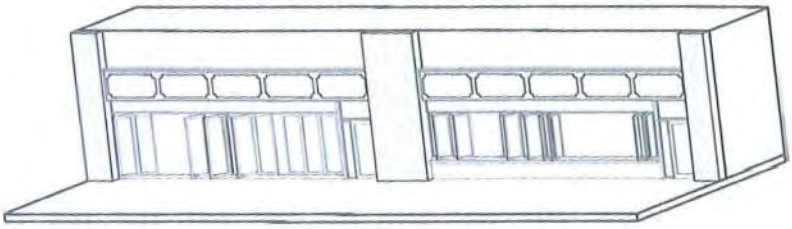
Retail/Mixed-use



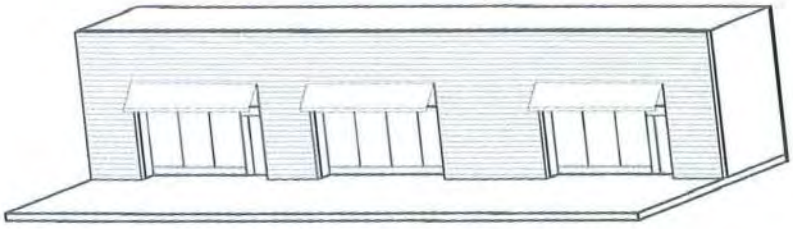
Display Window



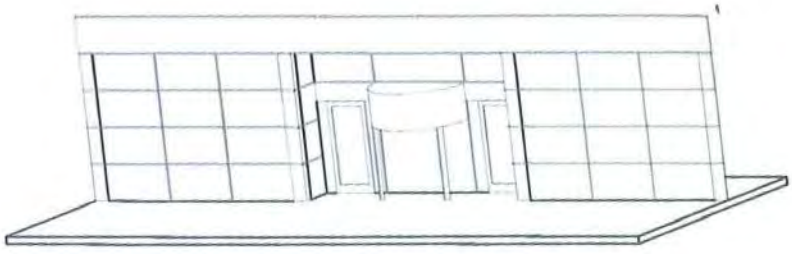
Canopy



Operable Window



Awning



Curtainwall

Examples of well-designed building facades for the ground floor (bottom 20 feet) of buildings

– ***Entrances***

Goal: Major entrances should be located on public streets, and on corners wherever possible. If appropriate, entrances should relate to crosswalks and pathways that lead to bus stops, transit and bike stations.

b. Residential Use Ground Floors

– Setbacks

Goal: Contribute to a pedestrian-friendly environment with residential character that includes ample space for walking, street trees and other plantings, and significant access to direct sunlight and sky views.

Goal: Create a consistent residential edge, with a setback from the sidewalk for compact front stoops, porches, and gardens, while ensuring compliance with state and federal access regulations.

– Entrances

Goal: Ensure that ground floor residences meet and exceed access needs of all users and incorporate 'visitability' measures. Providing fully accessible front entrances, beyond code requirements, is strongly encouraged, while balancing need for interior privacy. Consider strategies including:

Measures:

a. Accessible raised ramps lining the façade (with a continuous accessible passage as well as defined semi-private areas)
b. Ground-level entrances with added privacy elements such as 3- to 4- foot high walls, screens or vegetation, projecting trellises, or similar elements marking a transition to private space

– Façades

Goal: Wherever appropriate, design buildings with individual units and front doors facing the street, including row house units on the lower levels of multi-family buildings to create a rhythm of entrances and create a residential feel. Where residential lobbies face the street, doors should generally be spaced no more than 75 feet apart.

Goal: Residential buildings should also attempt to accommodate active uses that will enliven pedestrian activities.

Measures:

a. In parts of the street level façade that do not include residential units (e.g. common places and lobbies), incorporate 40 to 60 percent transparent glazing in the ground level façade with direct views between sidewalk and interior building spaces to expand the apparent width of public space at ground level.
b. Blank walls exceeding 20 feet in length should be avoided along all streets and pedestrian walkways.

6. Academic Buildings

Predominantly academic buildings should provide ground-level retail and services in the areas along public streets to foster positive connections among the academic, research, commercial, and residential communities.

However, academic buildings often have particular requirements that may make it difficult to meet these design guidelines. While academic buildings along major public streets should be held to the same standards as other commercial buildings, it is appropriate that there be greater latitude in ways to address the intent of the guidelines in the interior of the campus along Ames Street south of Main, Carleton, Hayward, and Amherst Streets.

The Koch Center on the MIT campus attempted to engage the public and convey the spirit of innovation through transparent ground floor facade that reveals public art gallery. However, the building is not actively used by the public. This attempt could have been improved by welcoming the public more directly with ground floor uses such as cafe or hosting events that are open to the public.

Academic Buildings Along Major Public Streets

Academic buildings along major public streets should be held to the same standards as other commercial buildings

Left: Academic buildings along major public streets should, like commercial buildings, devote 75% of their ground floor frontage to retail. 3401 Walnut St. inside the University of Pennsylvania's campus is a successful precedent of introducing ground floor retail in an academic building.

Right: Educational and cultural facilities open to the public encourage the public to experience institutional buildings while also helping to anchor destination retail and public places. The University of Pennsylvania's Institute of Contemporary Art, which is located adjacent to the retail and plaza space at Sansom Common welcomes the public by hosting programs open to the public (Copyright: Institute of Contemporary Art/ University of Pennsylvania. Photo by J. Katz).

Academic Buildings Interior to the Campus

Highly transparent ground floor spaces can bring life to institutional building edges.

Left: Hamilton Public Library and Farmer's Market in Hamilton, Ontario features interior graphics that are designed to be seen from outside (Copyright: Tom Arban).

Right: Massauchusettes College of Pharmacy and Health Science on Longwood Avenue, Boston, displays lab spaces to show innovators at work at the pedestrian level. This street frontage creates an interesting walking experience for the passerby and helps to break down the perceived barrier between academic institutions and the general public.

Academic building lobbies could be welcoming to the public while maintaining private and quiet environments for academic uses.

Left: The Carl Ichan Lab building at Princeton University has ample seating with artworks in a wide open lobby. Visitors and people from outside of the university find this place comfortable and agreeable to sit and rest.

Right: The temporary exhibition space at the Harvard Graduate School of Design is also a good example of an academic building lobby. The space is reconfigured occasionally to feature works of the GSD community. This gallery space is well-known by the visitors of the campus and became a platform to introduce what is being done inside the institution (Copyright: Yan Da).

PUD-KS URBAN DESIGN FRAMEWORK

Cambridge Community Development Department

WORKING DRAFT 11/9/2015

1. INTRODUCTION

The PUD-KS District is a unique area in the heart of Kendall Square. It is part of an area that was assembled and cleared for use by the Federal government in the 1960s. The Federal government retained ownership over much of the land, which has been home to the U.S. Department of Transportation's Volpe National Transportation Systems Center for over 45 years. However, the area has otherwise remained largely underdeveloped, while Kendall Square as a whole has evolved into a major regional and worldwide center for companies and institutions at the forefront of science and technology.

The Kendall Square (K2) portion of the city's "K2C2" Planning Study, conducted in 2011-2012, established a vision that would support the continued growth of the Kendall Square innovation economy while shaping the area into a more dynamic realm with more housing, improved public spaces and greater activity at the street level.

The K2 Study led to a new zoning proposal for the PUD-KS district, which is supplemented by this Urban Design Framework. The objective is to enable and guide the future reshaping of this unique area in accordance with the city's overall vision for Kendall Square.

PURPOSE

The PUD-KS Urban Design Framework (UDF) builds on numerous plans and initiatives, primarily the K2 Study and Design Guidelines (2013) and the *Connect Kendall Square* Framework Plan (2015), which was developed after the completion of the K2 Study through a competition process held by the City.

The purpose of the UDF is to visually represent the City's and the community's key goals and aspirations for the site. The UDF provides a set of recommendations focused on addressing a range of key physical planning and urban design opportunities (connections, open space, active uses, and built form). The UDF also links the broad goals found in the K2 Study to specific physical planning and urban design recommendations for the Volpe site.

Like the city's urban design guidelines for various parts of the city, the UDF is a guiding document that is meant to inform the city's review process for development proposals. It provides for flexibility by identifying key principles, concepts and ideas. A development proposal may suggest alternative design approaches in order to fulfill the objectives that are described and illustrated in the UDF.

The PUD-KS UDF is intended to provide guidance to Applicants in preparation of Special Permit applications, and to be used by the Planning Board in their review of such applications.

2. VISION AND KEY PRINCIPLES

VISION

An overarching vision expressing the desired future for Kendall Square was established through the K2 Planning Process:

A dynamic public realm connecting diverse choices for living, working, learning, and playing to inspire continued success of Cambridge's sustainable, globally-significant innovation community

The PUD-KS district represents a significant redevelopment opportunity with the greatest potential for change of any area within Kendall Square. Therefore, the following vision statement has emerged from discussions with City Council, the Planning Board and the community about the PUD-KS district in particular.

An accessible, diverse and unique place that integrates the PUD-KS district seamlessly into the surrounding urban fabric of Kendall Square and the Eastern Cambridge neighborhoods, and the community. A place that is defined by high quality sustainable architecture, urban design and open space with an enduring sense of place that celebrates Kendall Square's spirit of innovation and creativity.

KEY PRINCIPLES

In developing the zoning proposal and urban design guidelines for the PUD-KS district, several key principles also developed as primary goals for the site.

1. *Providing a mix of commercial and residential uses, with particular emphasis on housing and ground-floor retail, to encourage activity throughout the day and evening.*
2. *Incorporating a diversity of housing typologies and dwelling sizes that are appealing and accessible to a variety of residents.*
3. *Breaking up large blocks to increase permeability and create a fine-grained network of connections that seamlessly integrates the PUD district with the surrounding urban fabric of Kendall Square and the nearby neighborhoods.*
4. *Creating an integrated network of high-quality streets and open spaces, including significant space for public gathering and recreation that encourages and fosters a sense of community, civic engagement, social interaction, economic development and environmental sustainability.*
5. *Providing a strong street edge on major public streets, including Broadway and Third Street, to create a memorable "Main Street" experience.*
6. *Sensitively managing the height and bulk of new buildings to mitigate impacts on surrounding uses and public space.*
7. *Enhancing the architectural diversity of the district to harness the spirit of innovation and creativity in Kendall Square.*
8. *Promoting environmental sustainability in building and site design.*

3. URBAN DESIGN FRAMEWORK

The PUD-KS UDF articulates the key urban design and physical planning recommendations for the site through a series of conceptual diagrams and images.

When considering the preferred urban design outcomes for the site, several key elements need to be addressed, including: connections, open space, ground floor uses, built form and housing for families. The following sub-sections summarize the key recommendations that make up each of these elements.

The UDF as described in the following diagrams and images is just one possible way of achieving the vision and key principles identified earlier. Broadly, the recommendations seek to establish a framework for a series of interconnected streets, pedestrian and bicyclist connections, and open spaces, which will help shape future built form, create legibility and identity, and contribute to the vitality of and sense of community in Kendall Square.

DESIGN GUIDELINES

K2 STUDY DESIGN GUIDELINES

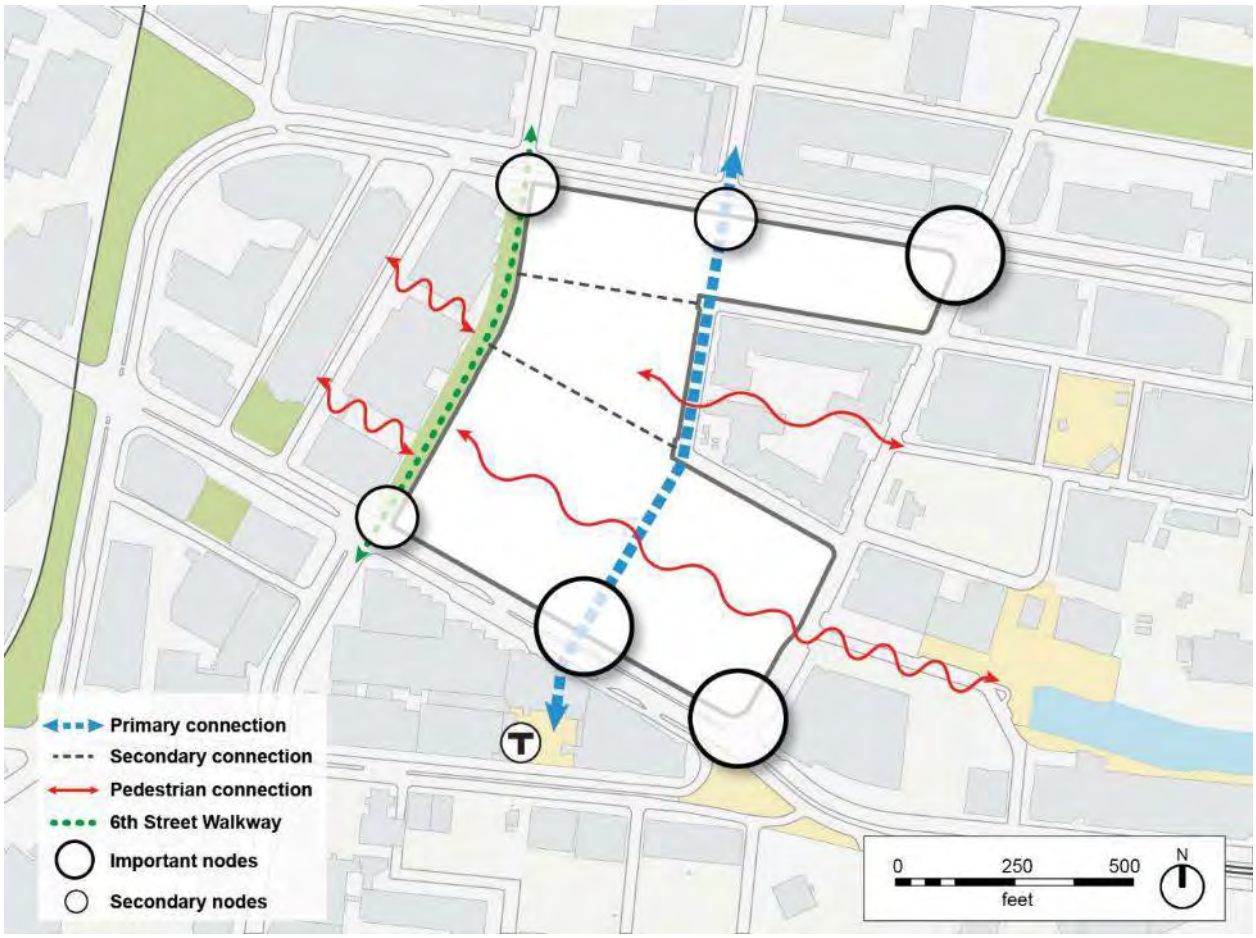
Design Guidelines for the Kendall Square area, which includes the PUD-KS District, were prepared during the K2 Study process to inform property owners, business owners, developers, and the general public about the desired form and character of development in Kendall Square. These guidelines articulate the design and site planning goals for Kendall Square, and measures to achieve these goals. The guidelines aim to:

- *Create a positive mixed-use district where tall buildings with large floor plates can be good neighbors to public spaces, smaller existing buildings, and adjacent residential neighborhoods.*
- *Create high-quality public environments, and ensure development contributes to the character and vitality of the surrounding community.*
- *Sensitively manage the impacts of bulk and height and animate the major streets and public spaces through encouraging active ground floor.*

SITE-SPECIFIC DESIGN GUIDELINES

Following further study, and with direction from the Planning Board, the need to provide additional guidance specific to the PUD-KS district was recognized. This approach acknowledges the unique potential of the PUD-KS district and its prime location in the heart of Kendall Square. The site-specific design guidelines provide further guidance in the Planning Board's review of a PUD master plan, as well as site planning and design matters pertaining to open space and circulation, and housing for families.

CONNECTIONS



The Connections conceptual diagram shows the desired level of connectivity through the PUD-KS site. Building on the ideas of the *Connect Kendall Square* Framework Plan, the UDF seeks to establish a legible circulation network and a fine urban grain. The main organizing feature is the extension of surrounding streets and connections into the site. The extension through the site of Fifth Street, as the primary connector, and Broad Canal Way as a connector to the vitality of the Charles River waterfront, as well as the enhancement of the Sixth Street Walkway, are key strategic moves that future Development Proposals should consider.

Provision of different types of connections (shared streets, multi-modal streets, bike lanes, mid-block connections, alleys etc.), which balance transportation and mobility, placemaking, and sustainability, is recommended. Through this approach, the desired character and quality of connections through the site can be established, which will help strengthen the identity and legibility of the district, and create a variety of experiences.

DESIGN OBJECTIVE

- Create a highly legible and integrated movement network that connects into every kind of route in order to encourage walking and cycling throughout the district.

GUIDELINES

1. Ensure that site planning and design provides for good connections and movement options through the district, and more broadly contributes to the accessibility, connectivity and permeability of the neighborhood.
2. Extend the network of surrounding streets and connections into the site.
3. Extend Fifth Street through the site as the primary connection and investigate use as a slow street with controlled vehicle access.
4. Create an east-west connection that links the Sixth Street Walkway and Broad Canal. The extension of Broad Canal Way should prioritize pedestrian access, creating a safe and inviting space for people to gather, play and socialize
5. Enhance the Loughrey Walkway (connecting Sixth Street to Ames Street).
6. Create a hierarchy of diverse streets and connections with different pedestrian experiences, functions and levels of importance that will help shape the future design of buildings and open spaces. Examples include shared streets, multi-modal streets, mid-block connections, alleys, etc.
7. Ensure high quality pedestrian connectivity between all uses in the PUD-KS district.
8. Encourage mid-block connections through buildings and permeable ground floors that encourage the passage of pedestrians through the building and break-up long building frontages.
9. Design all streets to prioritize pedestrians and cyclists.

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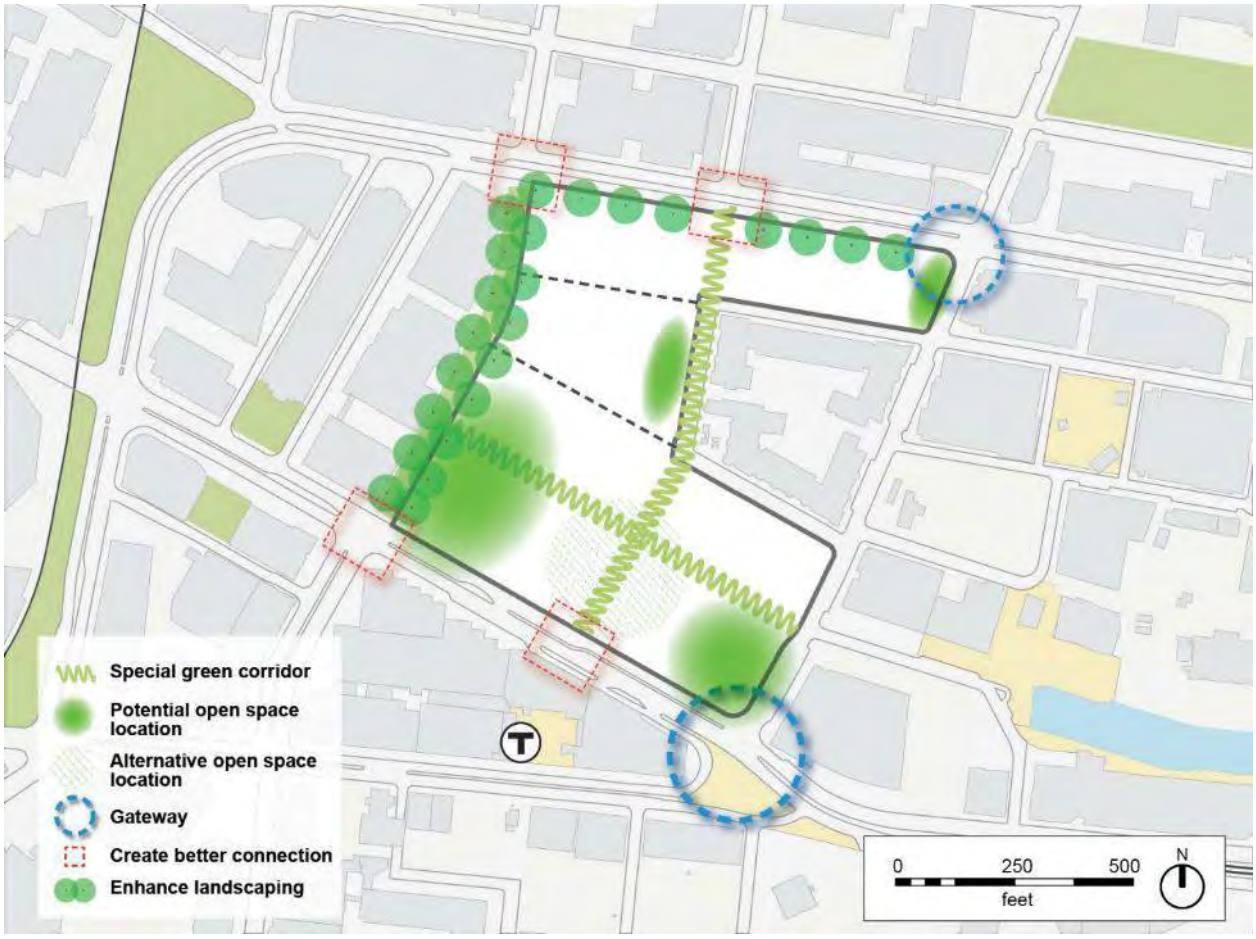
OPEN SPACE



The Open Space conceptual diagram is based on many of the principles and ideas of the *Connect Kendall Square* Framework Plan, which recognizes "significant opportunities to create a sequence of new public realm open spaces" through redevelopment of the area. It also encapsulates many of the community's desires for lively gathering spaces, and more naturalistic, passive parks that provide for both respite from and variety within the urban environment.

The concept envisions a network of open space areas organized along the extension of Fifth Street and/or Broad Canal Way through the site. Several potential locations with positive open space attributes have been identified and should be further explored through the PUD review process. The corner of Broadway and Third Street is the most prominent focal point on the site – a gateway location to mark a key corner. This opportunity should be emphasized through architecture and open space. The possibility of a public plaza/square should be considered to create a community focus, with potential to host community events and other activities.

While the potential open spaces vary in size and character, this does not preclude the possibility of one larger open space being provided on the site following detailed development planning.

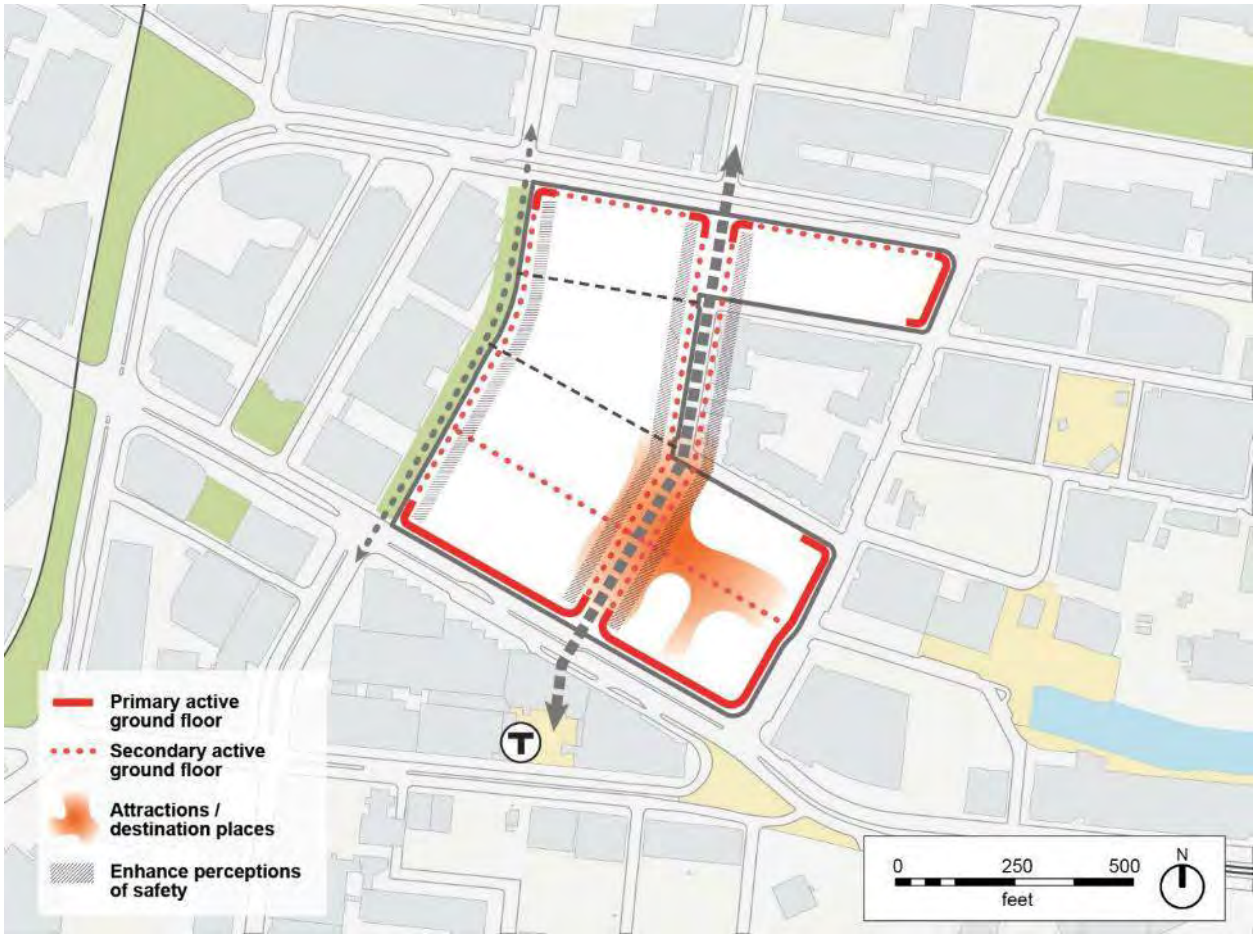
DESIGN OBJECTIVES:

- Create a cohesive network of high-quality open spaces and places that are well-connected and provide opportunities for people to relax, play and meet.

GUIDELINES

1. The open space network should be contiguous, helping to create a connected assemblage of outdoor and indoor places.
2. Ensure that the design and configuration of open space creates significant visual and physical connections through the site, including to Broad Canal and Point Park. Provide opportunities for views out of the site and access to sunlight and greenery for building inhabitants.
3. Support wayfinding by locating open space areas at strategic points in the movement network, such as important connections and intersections, e.g. the extension of Fifth Street and Broad Canal Way.
4. Strengthen the role of Loughrey Walkway as an 'active green spine' linking Kendall Square to the Eastern Cambridge neighborhoods. Ensure a pleasant and inviting pedestrian and cycling link is maintained.
5. Create a significant public gathering space or public park. The park must have dimensions large enough to encourage civic participation and community events, and be either located central to the site or at an important gateway to the site (e.g., the corner of Broadway and Third Street, which may serve as a potential gateway and focal point).
6. Create green corridors by providing canopy trees and stormwater management features, such as bioswales.
7. Create additional smaller open spaces that can help to connect the central gathering space with the broader open space network of Kendall Square.
8. Investigate opportunities for providing active play spaces, including playgrounds, water features, informal sports and game spaces, and indoor play and recreation spaces.
9. Locate public open space with good solar access (especially in shoulder months, and during the winter), protected from wind, accommodating tree plantings and directly accessible from streets.
10. Ensure open spaces have active and defined edges, which are framed by buildings.
11. Connect any rooftop open space to adjacent interior space, with direct access from public spaces, and with visual connections to sidewalks and other buildings
12. Consider ways to design open space to enhance the identity and character of Kendall Square with wayfinding initiatives, public art and sculpture, interactive installations, etc.
13. Design and program open spaces to be flexible, and to promote robust activity and social life throughout the day and evening, on weekends and throughout the year.
14. Incorporate stormwater treatment / management strategies and environmental sustainability into the design of open space areas.
15. Identify strategies for how future public and private open spaces will be integrated into the open space network, and ensure that privately-owned spaces accessible to the public are clearly legible as such, and are welcoming to the public.
16. In the case of a development plan including a government-owned facility and open space, encourage positive relationships between that facility and adjacent streets, open spaces and active public uses, especially where the facility includes active-use spaces that are open to the public.

ACTIVE GROUND FLOORS



One of the key aims of the K2 Study is to continue to transform Kendall Square into an ever more animated and fruitful center for living, working, and playing. The Active Ground Floors conceptual diagram seeks to clarify where ground floor active uses should be prioritized. While it would be ideal to have active uses fronting all connections and open spaces, it may not be practically viable, so it is helpful to prioritize where activity is most needed and where certain uses will be the most viable. As such, primary active streets are identified, then secondary active streets. In addition, the diagram identifies preferred locations where destination type activities and uses should be encouraged in order to draw people into and through the site.

There is strong interest in a range of retail uses, community and civic spaces that would help the PUD-KS district become part of the neighborhood and draw more interest from the community at large. The following activities were identified as the most desired:

- Grocery store, pharmacy and convenience goods
- More diverse restaurants, including family restaurants, and short-order or takeout food
- Uses serving families with children, including affordable child care, indoor play and recreation
- Workforce training space
- Cultural spaces such as performance spaces, museums and galleries

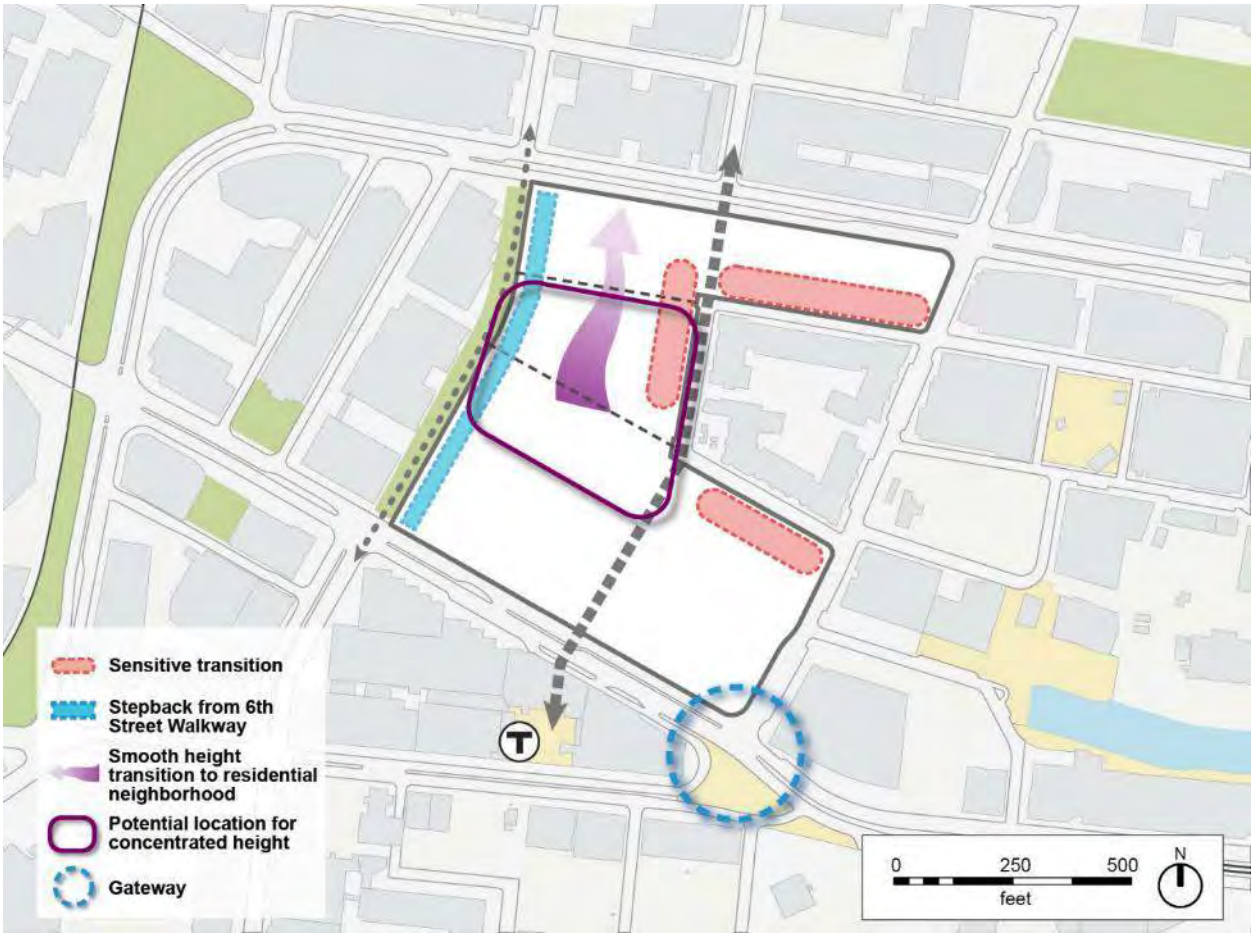
DESIGN OBJECTIVE

- Provide active ground floors that animate streets and open spaces, and add to the vitality of Kendall Square, while meeting the community's needs.

GUIDELINES

1. Provide a strong street edge on major public streets, including Broadway and Third Street.
2. Prioritize the activation of the extended Fifth Street as a major connection from the Kendall Square T station to the East Cambridge neighborhood.
3. Along Binney Street, focus active uses on important corners with Third, Fifth and Sixth Streets.
4. Concentrate key uses that could serve as destination places or community attractions along the extension of Fifth Street and Broad Canal Way.
5. Create two-sided commercial streets where possible for economic viability.
6. Ensure connections are lined with active frontages, and integrated into Kendall Square's urban layout and structure.
7. Consider various design and siting measures to enhance the feeling of safety along the Sixth Street Walkway and the future extension of Fifth Street.
8. Ground floor retail uses should be distinct, diverse, and animated with spaces designed to accommodate a variety of retailers with a range of unit sizes and rental/ ownership costs.
9. Retail uses and services that are not currently provided in the neighborhood (grocery store, pharmacy, diverse restaurants) are encouraged.
10. Utilities should be located underground, or off primary and secondary connections, to maximize the continuous active frontage.

BUILT FORM



The PUD-KS zoning requirements provide flexibility in the arrangement of buildings and height in order to produce better designed buildings and open spaces. The PUD development review process provides an opportunity to explore options for development as part of an overall master plan that fits within the site and context. As such, the Built Form conceptual diagram identifies areas and interfaces that will require careful and sensitive consideration in the development review process.

The PUD-KS objectives and guidelines for Built Form are intended to complement the Kendall Square Design Guidelines, which provide additional detail on the desired built form characteristics of new buildings.

DESIGN OBJECTIVE

- Building massing and location should be responsive to site conditions and should establish a high quality and amenable public realm.

GUIDELINES

1. Consider sensitive transitions to the existing low-scale buildings on Third Street when designing the site plan and individual buildings.
2. Step back from the existing Sixth Street Walkway to provide a comfortable and spacious walking/bicycling experience.
3. Provide smooth height transitions to the residential neighborhoods to minimize the impact of tall buildings.
4. Pay special attention to the corner of Broadway and Third Street, which may become an important gateway. Consider views from Point Park to create a welcoming entrance to the site.
5. Consider height and massing options that will minimize or mitigate overshadowing and uncomfortable wind impacts on public streets and open spaces.

In assessing whether a taller building should be approved as a "distinctive architectural landmark," the following matters should be considered:

1. Whether a very high standard of architectural design excellence, materials and detailing appropriate to the building type and location is achieved. This includes consideration of:
   - Site and building organization, relationship to other buildings, massing, scale, proportion, rhythm, unity and expression, architectural ambition, architectural language, and aesthetics.
2. Whether the form and external appearance of the building will improve the quality and amenity of the public realm.
3. Whether the building exhibits innovative technologies and sustainable design principles, and is designed to be flexible and adaptable over time.
4. Whether adverse impacts on the microclimate (including shadows, wind and heat island effects) have been mitigated.
5. Whether the building makes a positive contribution to the Cambridge skyline and important views.

HOUSING FOR FAMILIES

Residential development, including housing that meets the needs of families, is a high priority for the City and the community. The intent of these design objectives and guidelines is to address some of the key livability issues relating to the siting and design of housing for families with children in the PUD-KS district.

DESIGN OBJECTIVES

- Locate family units in portions of the building or site that overlook common outdoor play areas, and are closest to community services and recreational amenities.
- Ensure that the size and layout of units meet the needs of families with children.

GUIDELINES

1. Provide easy access to appropriately located, and designed outdoor open space.
2. Design family units to maximize the potential for adults to supervise children at play through visual and direct physical connections.
3. Consider providing indoor play areas that are easily accessible to family units.
4. Three bedroom family units should consist of one master bedroom and two smaller bedrooms.
5. Consider private outdoor open space adjacent to units.
6. Provide sufficient storage within the unit or within easy access of the unit. Storage spaces should be to accommodate household items such as strollers, large toys, etc.

CONCEPTUAL AERIAL VIEWS

The following conceptual diagrams and images are for general illustrative purposes only. The renderings describe one of many massing scenarios possible under the provisions of the PUD-KS District, UDF and K2 Design Guidelines. The images and building forms do not represent particular architectural or open space designs.

- PUD-KS commercial buildings
- PUD-KS residential buildings
- PUD-KS Possible Volpe building
- MXD Rezoning proposal and approved Ames St housing
- MIT Special Permit Application

Potential location for community gathering / cultural space with seamless connections to plaza

Example of a centrally located picturesque park

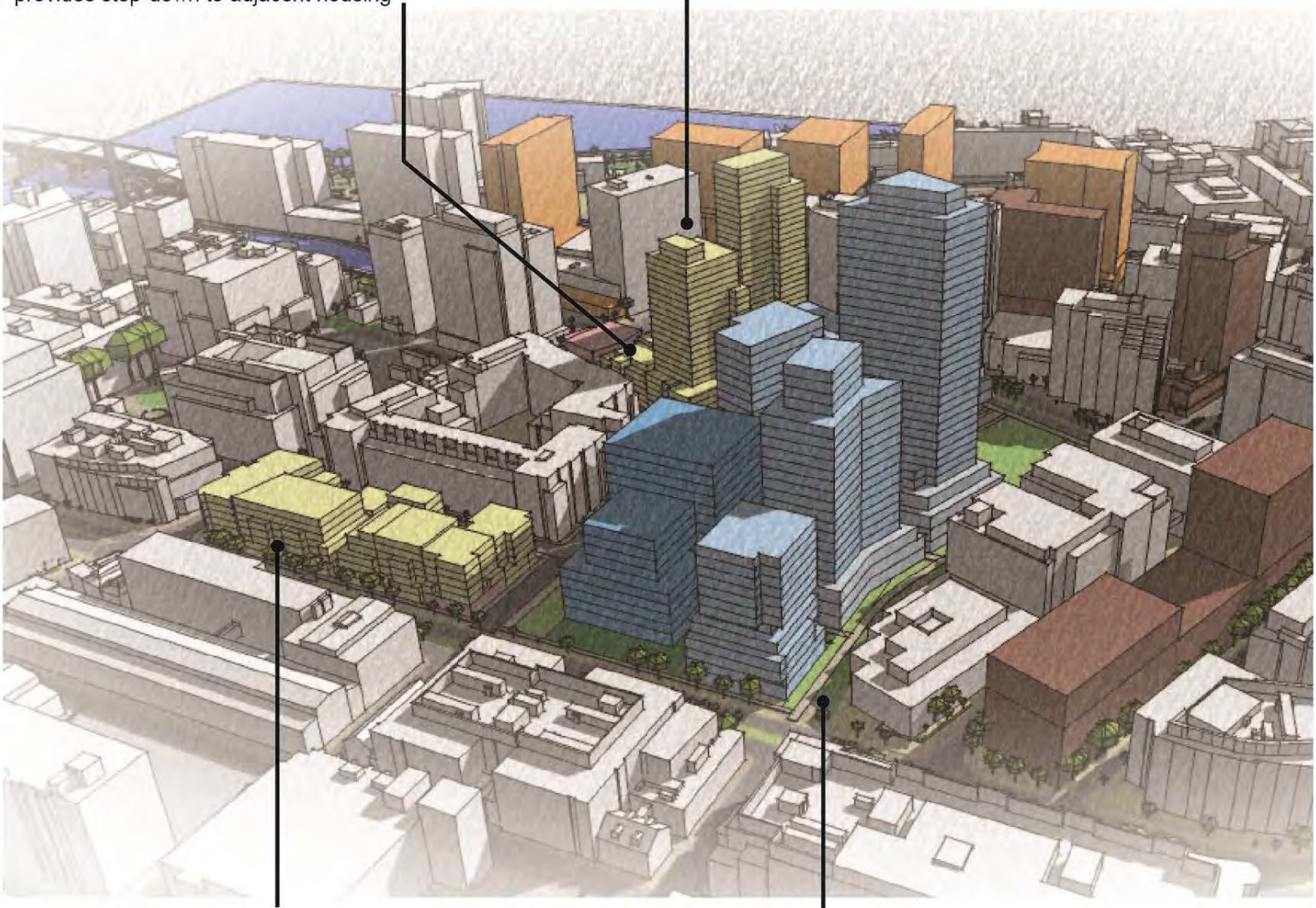
Example of an open space corridor with taller buildings in backdrop

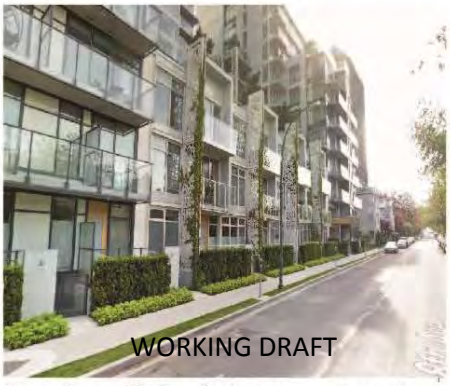
Example of a lively urban plaza with strong built form

WORKING DRAFT

Example of low to mid rise multi-family housing overlooking open space, also provides step-down to adjacent housing

Example of a podium/tower residential building





Housing with front stoops and gardens

Enhance 6th Street connector as an "active green spine"

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